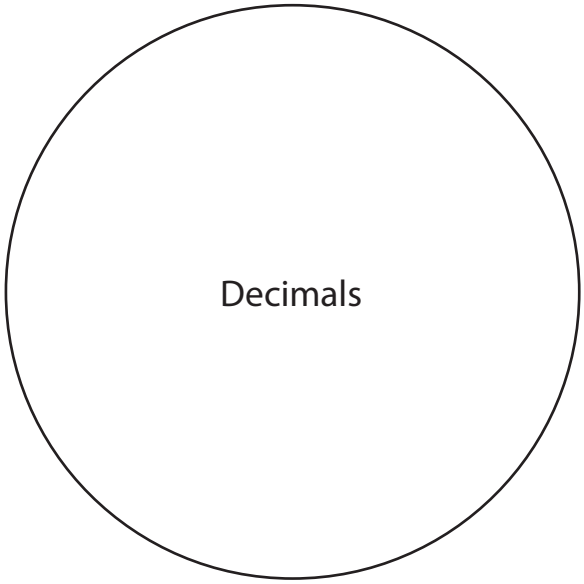
Decimals

Teacher Masters

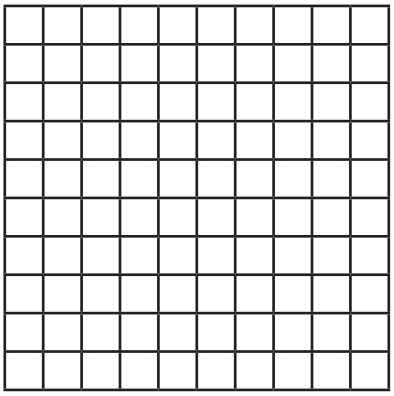
The Meadows Center for Preventing Educational Risk—Mathematics Institute
The University of Texas at Austin

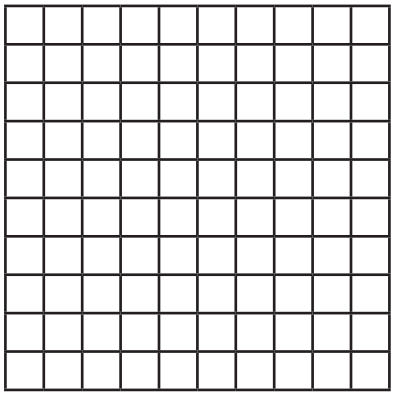
Warming Up:

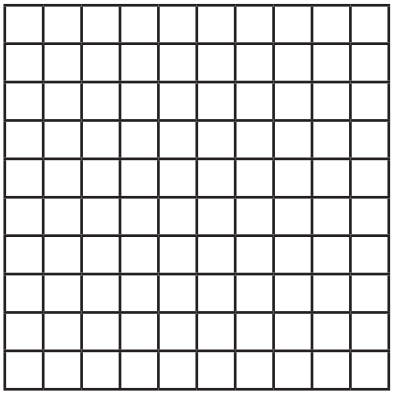


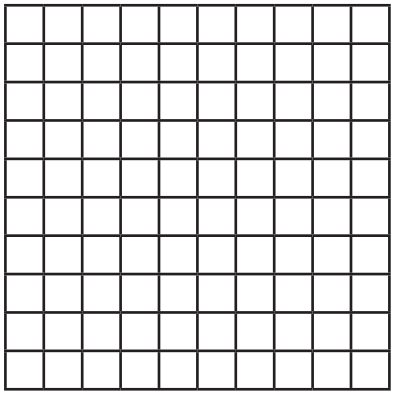
Learning to Solve:

1. $\frac{6}{10}$ and $\frac{60}{100}$







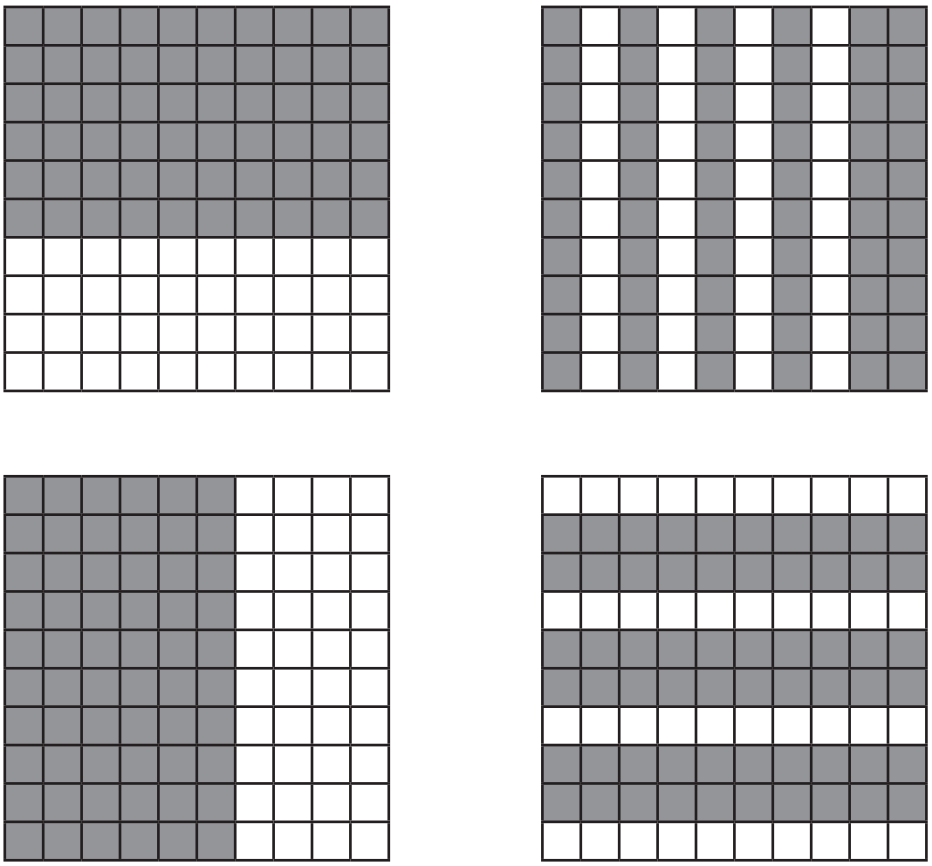


2.

4	4	4	.4

Learning to Solve:

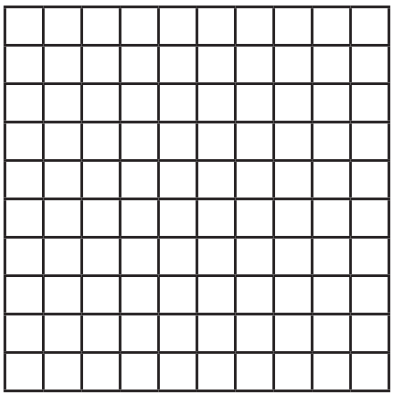
1. $\frac{6}{10}$ and $\frac{60}{100}$ Answers will vary. Possible answers are given.



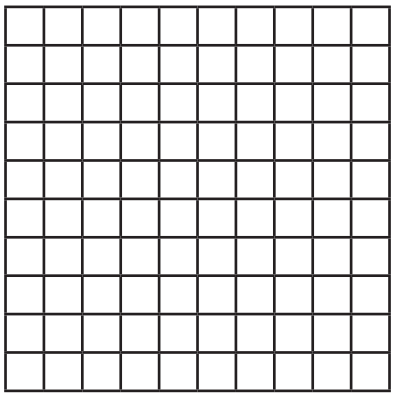
2.

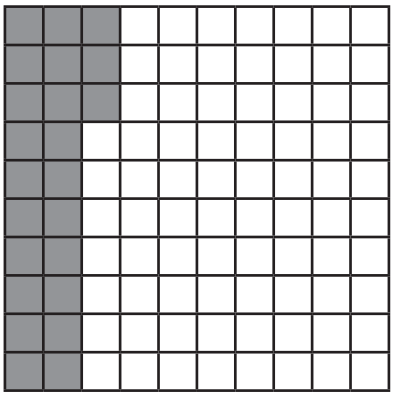
Hundreds	Tens	Ones	Tenths
100	10	1	0.1
4	4	4	.4
400	40	4	0.4

3. $\frac{3}{10}$

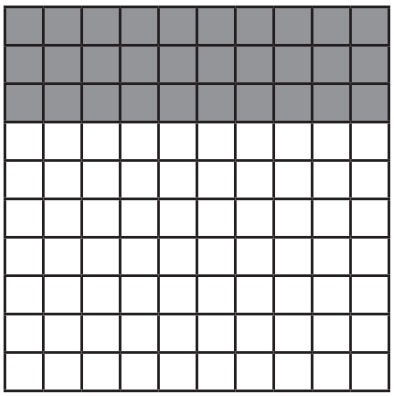


$\frac{30}{100}$

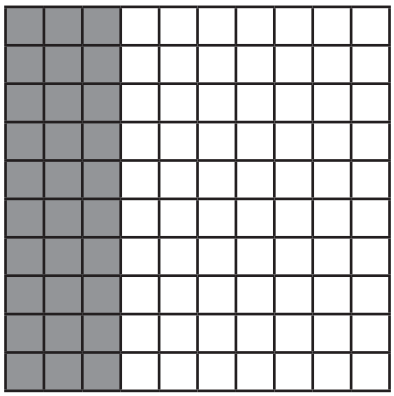




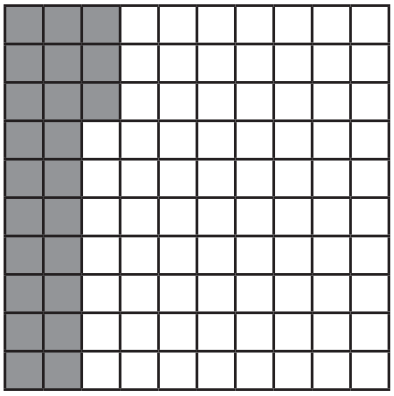
3. $\frac{3}{10}$



$\frac{30}{100}$



0.23



Practicing Together:

Write each fraction as a decimal number.

1. $\frac{6}{10}$ _____

2. $\frac{47}{100}$ _____

3. $\frac{9}{10}$ _____

4. $\frac{80}{100}$ _____

Write each decimal as a decimal fraction.

5. 0.25 _____

6. 0.6 _____

7. 0.45 _____

8. 0.4 _____

Practicing Together:

Write each fraction as a decimal number.

1. $\frac{6}{10}$ 0.6 or 0.60

2. $\frac{47}{100}$ 0.47

3. $\frac{9}{10}$ 0.9 or 0.90

4. $\frac{80}{100}$ 0.8 or 0.80

Write each decimal as a decimal fraction.

5. 0.25 $\frac{25}{100}$

6. 0.6 $\frac{60}{100}$ or $\frac{6}{10}$

7. 0.45 $\frac{45}{100}$

8. 0.4 $\frac{4}{10}$ or $\frac{40}{100}$

9. Cameron asked, "In 852.03, what does the 3 represent?" What would you say to Cameron?

a. It represents 3 ones because it is the first digit on the right.

b. It represents 3 tenths because it is the second digit after the decimal point.

c. It represents 3 hundredths because it is $\frac{1}{10}$ of the place value to the left.

d. It represents 3 tens because there are 2 digits after the decimal point.

9. Cameron asked, "In 852.03, what does the 3 represent?" What would you say to Cameron?

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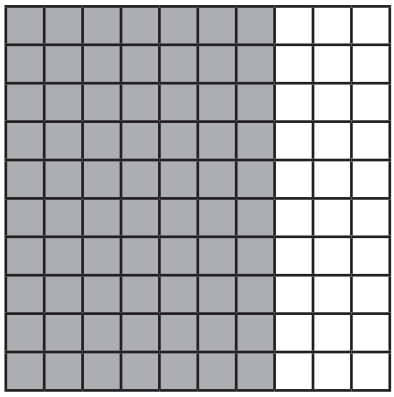
Trying It on Your Own

1.



Which of the following describes the shaded area of the grid?

a. $\frac{3}{7}$

b. 0.07

c. 0.7

d. 70

2. Which of the following is the decimal fraction for 0.73?

a. $\frac{73}{10}$

b. $\frac{73}{100}$

c. $\frac{73}{1}$

d. $\frac{100}{73}$

Trying It on Your Own

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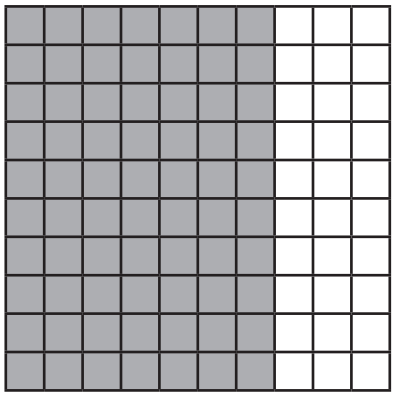

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d. 70

2. Which of the following is the decimal fraction for 0.73?

a. $\frac{73}{10}$

b. $\frac{73}{100}$

c. $\frac{73}{1}$

d. $\frac{100}{73}$

3. Dan said, "The 3 in 726.3 represents 30, or 3 tens." Do you agree with Dan?

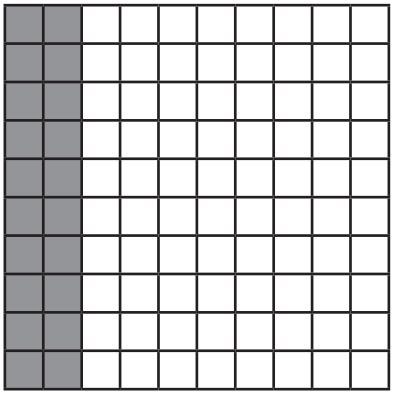
a. Agree, because each place value in a number is 10 times larger than the place value before it.

b. Agree, because it could be written as 726.30.

c. Disagree, because the 3 represents 3 ones.

d. Disagree, because the 3 represents 3 tenths.

4. Which of the following is equivalent to 0.2?



a. 0.02

b. 0.20

c. 2.0

d. 20.0

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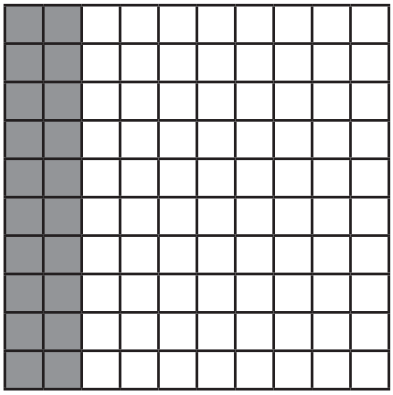


a. 0.02

b. 0.20

c. 2.0

d. 20.0

Wrapping It Up

Each of you has a card with either a fraction or a decimal number. Find the person whose number represents an equivalent amount.

Warming Up:

0.1	$\frac{20}{100}$	0.02	$\frac{3}{100}$
0.5	$\frac{110}{100}$	1.01	$\frac{10}{100}$
0.2	$\frac{40}{100}$	0.01	$\frac{50}{100}$
0.05	$\frac{101}{100}$	0.04	$\frac{30}{100}$
1.1	$\frac{4}{100}$	0.03	$\frac{5}{100}$
0.3	$\frac{1}{100}$	0.4	$\frac{2}{100}$

Warming Up:

Answers will vary, depending on the order in which the students place their letters, but the following matches should be made:

0.2: $\frac{20}{100}$

0.03: $\frac{3}{100}$

1.1: $\frac{110}{100}$

0.1: $\frac{1}{100}$

0.4: $\frac{40}{100}$

0.5: $\frac{50}{100}$

1.01: $\frac{101}{100}$

0.3: $\frac{30}{100}$

0.04: $\frac{40}{400}$

0.05: $\frac{5}{100}$

0.01: $\frac{1}{100}$

0.02: $\frac{2}{100}$

Learning to Solve:

Match the decimal with its place on the number line.

0.45 _____

0.73 _____

0.16 _____

0.88 _____

Compare.

0.37 _____ 0.42

0.137 _____ 0.132

0.53 _____ $\frac{1}{2}$

Learning to Solve:

Match the decimal with its place on the number line.

0.45 D

0.73 E

0.16 B

0.88 C

Compare.

0.37 < 0.42

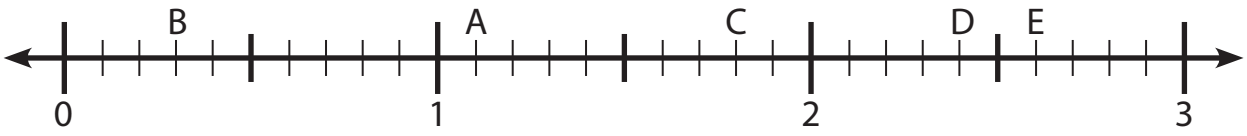
0.137 > 0.132

0.53 > $\frac{1}{2}$

Practicing Together:

1. Match the decimal with its place on the number line.

1.8 _____ 1.1 _____ 2.6 _____ 2.4 _____



2. Write <, >, or = in the blank.

1. 0.651 _____ 0.295

2. 0.032 _____ 0.210

3. $\frac{1}{4}$ _____ 0.251

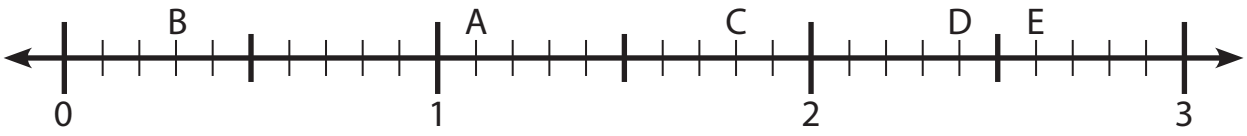
4. 3.201 _____ 3.002

5. 2.320 _____ $\frac{23}{10}$

Practicing Together:

1. Match the decimal with its place on the number line.

1.8 C 1.1 A 2.6 E 2.4 D



2. Write <, >, or = in the blank.

1. 0.651 > 0.295

2. 0.032 < 0.210

3. $\frac{1}{4}$ < 0.251

4. 3.201 > 3.002

5. 2.320 > $\frac{23}{10}$

6. Samson said, "0.804 is greater than 0.81." Do you agree with Samson?

a. Yes, I agree because 0.804 has more digits than 0.81.

b. Yes, I agree because the last digit is 4, which is greater than 1.

c. No, I disagree because 804 thousandths is less than 810 thousandths.

d. No, I disagree because 81 is greater than 80.

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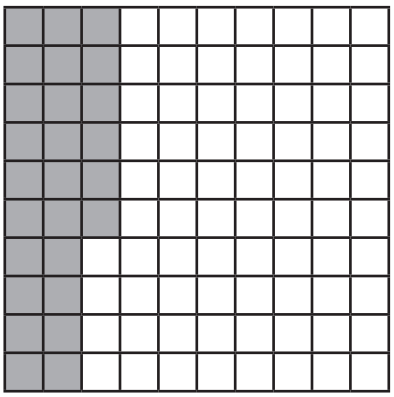
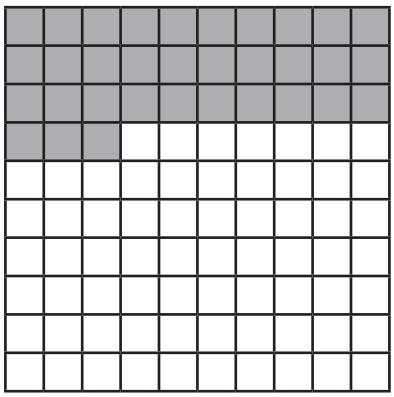
Trying It on Your Own

1. Which statement is true?



Carl's model of 0.26



Ben's model of 0.33

a. You can't tell which decimal is greater.

b. Carl's model of 0.26 shows that 0.26 > 0.33, because you can't model 0.33 like Ben did.

c. 0.26 < 0.33

d. 0.26 > 0.33

2. Which of the following is a correct statement?

a. $\frac{1}{2} > 0.5$

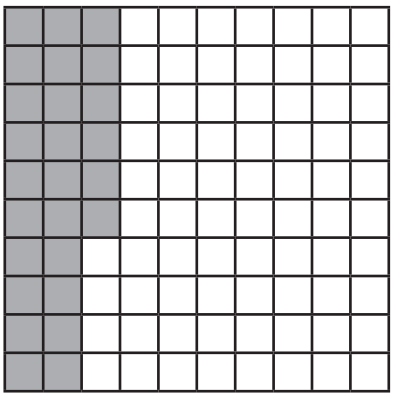
b. $\frac{1}{2} > 0.55$

c. $0.49 > \frac{1}{2}$

d. $0.512 > \frac{1}{2}$

Trying It on Your Own

1. Which statement is true?



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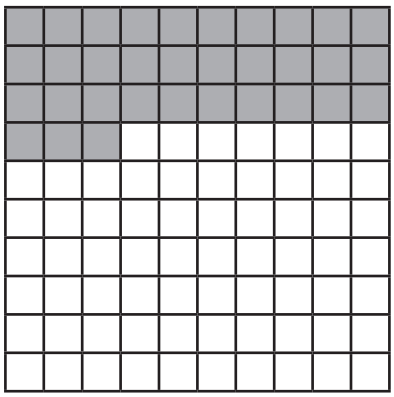

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b. $\frac{1}{2} > 0.55$

c. $0.49 > \frac{1}{2}$

d. $0.512 > \frac{1}{2}$

3. Martha said that $0.421 < 0.42$. Do you agree with her?

a. No, because 421 is not less than 42.

b. No, because 421 thousandths is greater than 420 thousandths.

c. Yes, because if there are more digits in the decimal, it will be smaller.

d. Yes, because the last digit of 0.421 is 1 and the last digit of 0.42 is 2.

4. Which statement describes the relationship between 0.368 and 0.279?

a. $0.3 > 0.2$; therefore, $0.368 > 0.279$.

b. The 8 in 0.368 is less than the 9 in 0.279, so $0.368 < 0.279$.

c. There are 3 digits in each decimal, so $0.368 = 0.279$.

d. 79 is greater than 68, so $0.279 > 0.368$.

3. Martha said that 0.421 < 0.42. Do you agree with her?

a. No, because 421 is not less than 42.

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d. 79 is greater than 68, so 0.279 > 0.368.

Learning to Solve:

Put these numbers in order from least to greatest.

1.27 $\frac{23}{10}$ 0.98 0.908 $\frac{93}{100}$ 2.54

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Put these numbers in order from least to greatest.

1.27 $\frac{23}{10}$ 0.98 0.908 $\frac{93}{100}$ 2.54

0.908, $\frac{93}{100}$, 0.98, 1.27, $\frac{23}{10}$, 2.54

Practicing Together:

Decimal Card Game Answer Sheet Instructions:

Instructions: Take turns flipping over the top 2 cards in your stack. Document the digits. Work together to identify the larger decimal number and circle it. When you finish the stack, shuffle all of the cards and repeat. Document each card that is pulled and circle the greater number.

Turn	Cards pulled
1	,
2	,
3	,
4	,
5	,
6	,
7	,
8	,
9	,
10	,
11	,
12	,
13	,
14	,
15	,

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Answers will vary, based on what cards the students pull.

Turn	Cards pulled
1	,
2	,
3	,
4	,
5	,
6	,
7	,
8	,
9	,
10	,
11	,
12	,
13	,
14	,
15	,

Game 2

Instructions: Take turns flipping over the top 3 cards in your stack. Write the numbers you pull in the first column, and work together to put the cards in ascending order. Write the numbers in ascending order in the last column. When you finish the stack, shuffle all of the cards and repeat.

Document each card

Turn	Cards pulled	Ascending order
1	, ,	, ,
2	, ,	, ,
3	, ,	, ,
4	, ,	, ,
5	, ,	, ,
6	, ,	, ,
7	, ,	, ,
8	, ,	, ,
9	, ,	, ,
10	, ,	, ,

Game 2

Instructions: Take turns flipping over the top 3 cards in your stack. Write the numbers you pull in the first column, and work together to put the cards in ascending order. Write the numbers in ascending order in the last column. When you finish the stack, shuffle all of the cards and repeat.

Document each card

Answers will vary, based on what cards the students pull.

Turn	Cards pulled	Ascending order
1	, ,	, ,
2	, ,	, ,
3	, ,	, ,
4	, ,	, ,
5	, ,	, ,
6	, ,	, ,
7	, ,	, ,
8	, ,	, ,
9	, ,	, ,
10	, ,	, ,

Game 3

Instructions: Take turns flipping over the top 4 cards in your stack. Write the numbers you pull in the first column. Work together to put the cards in descending order. Write your answer in the last column.

Turn	Cards pulled	Descending order
1	, , ,	, , ,
2	, , ,	, , ,
3	, , ,	, , ,
4	, , ,	, , ,
5	, , ,	, , ,
6	, , ,	, , ,
7	, , ,	, , ,
8	, , ,	, , ,

Game 3

Instructions: Take turns flipping over the top 4 cards in your stack. Write the numbers you pull in the first column. Work together to put the cards in descending order. Write your answer in the last column.

Answers will vary, based on what cards the students pull.

Turn	Cards pulled	Descending order
1	, , ,	, , ,
2	, , ,	, , ,
3	, , ,	, , ,
4	, , ,	, , ,
5	, , ,	, , ,
6	, , ,	, , ,
7	, , ,	, , ,
8	, , ,	, , ,

Trying It on Your Own

1. Which of the following shows a correct compare relationship?

a. $0.25 < 0.155$

b. $0.381 < 0.318$

c. $0.97 = 0.970$

d. $0.624 > 0.626$

2. Put these rational numbers in order from least to greatest, or ascending order:

$$\frac{4}{10},\ 0.762,\ 0.5,\ \frac{31}{100}$$

a. $\frac{4}{10}, 0.762, 0.5, \frac{31}{100}$

b. $\frac{4}{10}, 0.5, \frac{31}{100}, 0.762$

c. $0.5, 0.762, \frac{4}{10}, \frac{31}{100}$

d. $\frac{31}{100}, \frac{4}{10}, 0.5, 0.762$

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a. $\frac{4}{10}, 0.762, 0.5, \frac{31}{100}$

b. $\frac{4}{10}, 0.5, \frac{31}{100}, 0.762$

c. $0.5, 0.762, \frac{4}{10}, \frac{31}{100}$

d. $\frac{31}{100}, \frac{4}{10}, 0.5, 0.762$

3. Which is the correct descending, or greatest to least, order of this set of decimals?

0.450, 0.405, 0.042, 0.46, 0.4

a. 0.4, 0.405, 0.042, 0.450, 0.46
b. 0.46, 0.450, 0.405, 0.4, 0.042
c. 0.4, 0.042, 0.450, 0.46, 0.405
d. 0.042, 0.4, 0.405, 0.450, 0.46

4. Erin said that these numbers were in order from greatest to least:

0.712, 0.71, $\frac{7}{10}$, $\frac{1}{2}$. Is she correct?

a. Yes, because she knows that $\frac{1}{2} = 0.5$ and $\frac{7}{10} = 0.7$. She put the decimals in order from greatest to least: 0.712, 0.71, 0.7, 0.5.

b. Yes, because $\frac{1}{2}$ is like 50 and $\frac{7}{10}$ is like 70 and then you can put them in this order 50, 70, 71, 712.

c. No, because $\frac{1}{2}$ is the largest number in the list, so it should go first.

d. No, because $\frac{7}{10}$ is equal to 0.70, which is greater than 0.71.

3. Which is the correct descending, or greatest to least, order of this set of decimals?

0.450, 0.405, 0.042, 0.46, 0.4

a. 0.4, 0.405, 0.042, 0.450, 0.46
b. 0.46, 0.450, 0.405, 0.4, 0.042
c. 0.4, 0.042, 0.450, 0.46, 0.405
d. 0.042, 0.4, 0.405, 0.450, 0.46

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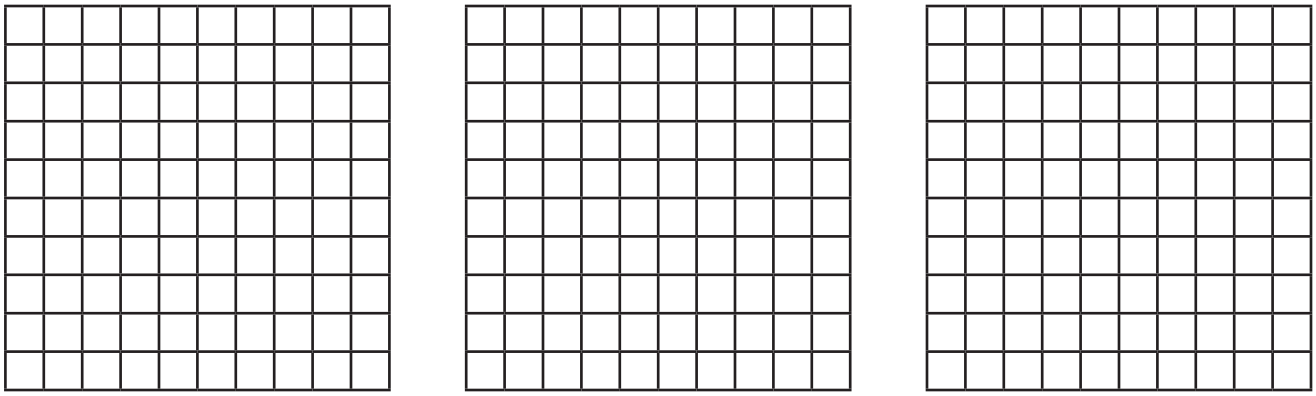
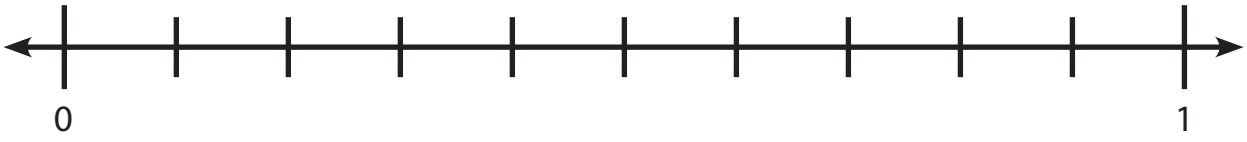
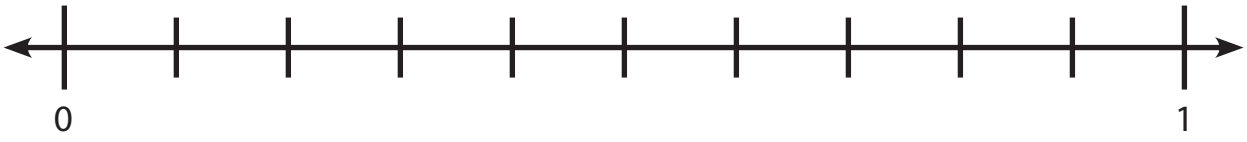
d. No, because $\frac{7}{10}$ is equal to 0.70, which is greater than 0.71.

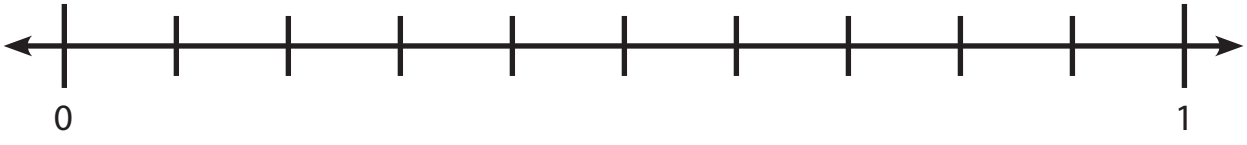
Learning to Solve:

John said that 0.8 is closer to 0.5 than 0.75. Do you agree? Why or why not? Use at least 1 of the models (10 by 10 grid or number line) to support your answer.





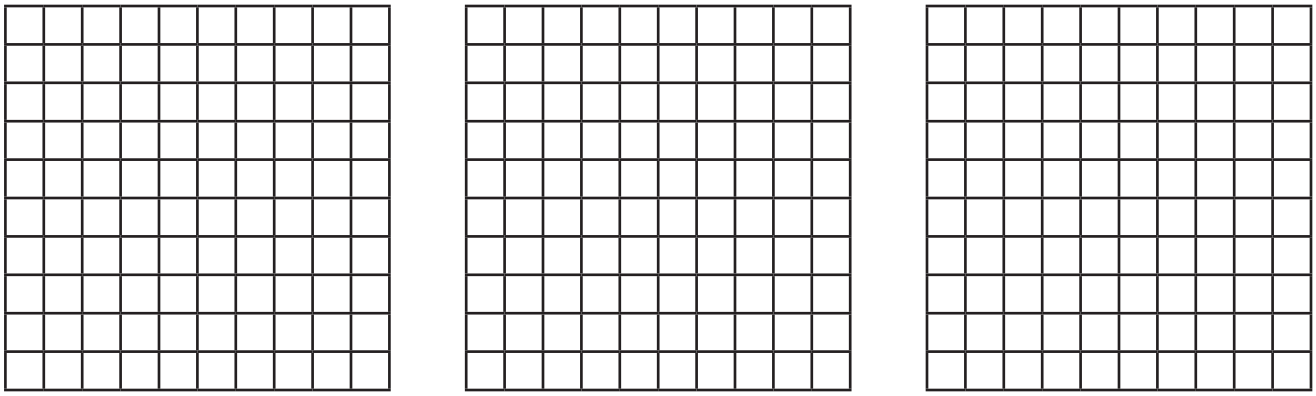


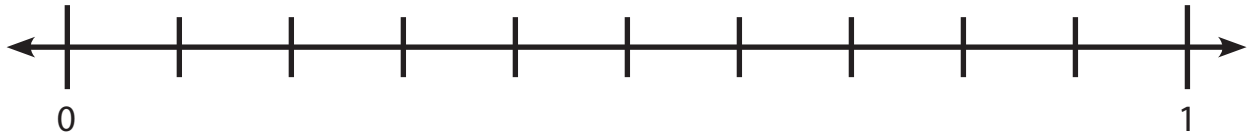


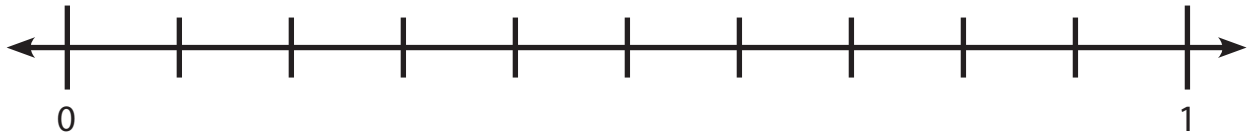
Learning to Solve:

John said that 0.8 is closer to 0.5 than 0.75. Do you agree? Why or why not? Use at least 1 of the models (10 by 10 grid or number line) to support your answer.

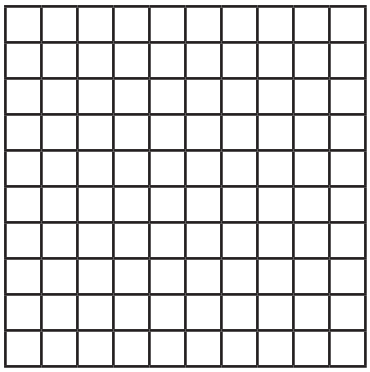
Models will vary, such as because there is less distance between 0.8 and 0.75 than between 0.8 and 0.5, 0.8 is closer to 0.75 than to 0.5.



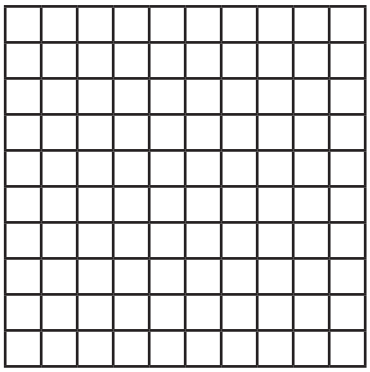




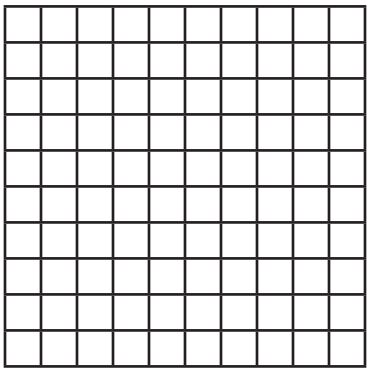
Model each benchmark decimal.



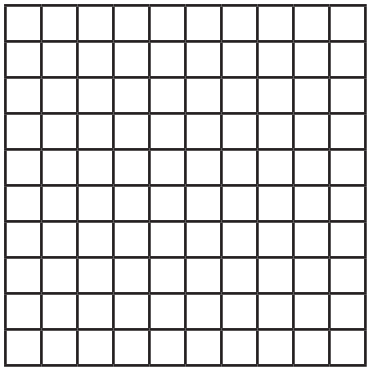
0.25



0.5



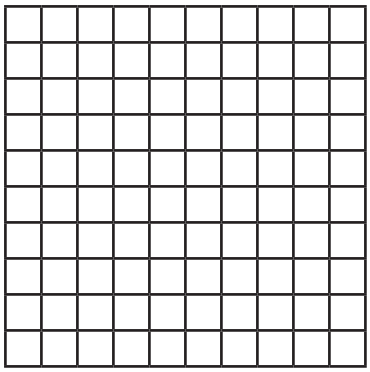
0.75



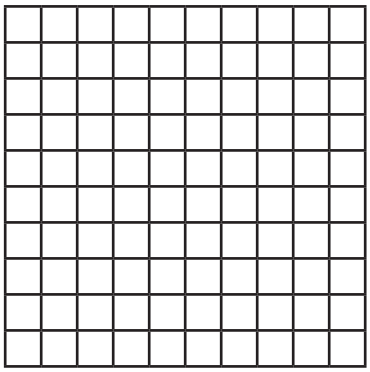
1

Model each benchmark decimal.

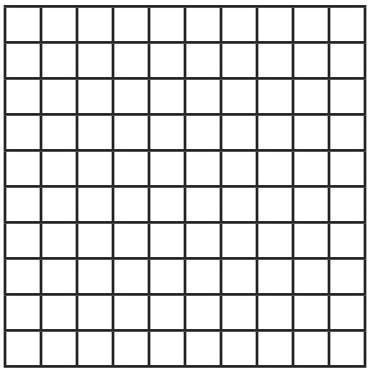
Models will vary, depending on how students marked their grids.



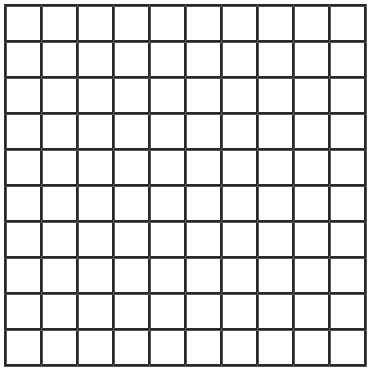
0.25



0.5



0.75

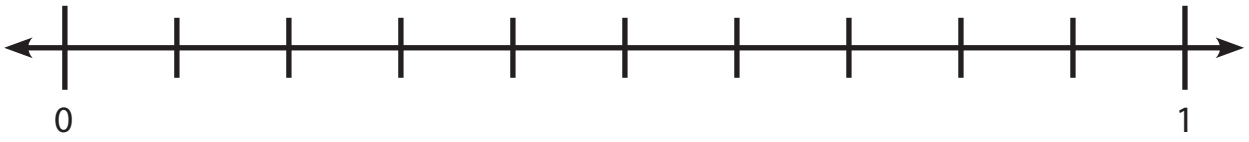


1

Model each benchmark decimal.

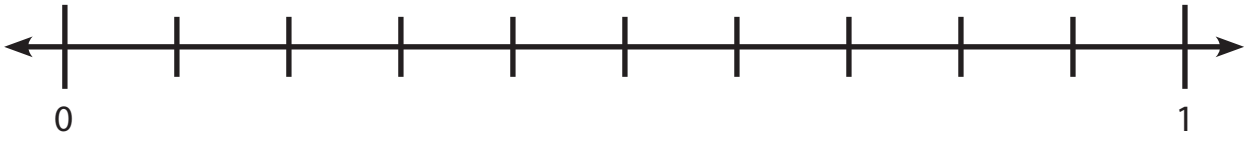
0.25

0.5



0.75

1



Model each benchmark decimal.

0.25

0.5

0.75

1

Practicing Together:

Display the Cards of Decimals for Lesson 4 (see page 129 of Teacher Masters). You will have a set of cards that show decimals (page 129 on your student booklet). Work with your partner to make the sort. Be sure you agree on how you decided to sort the decimals. You are going to sort them based on which benchmark decimal each on is closer to. Fit the Decimals into the columns below.

0	0.25	0.5	0.75	1

Practicing Together:

Display the Cards of Decimals for Lesson 4 (see page 129 of Teacher Masters). You will have a set of cards that show decimals (page 129 on your student booklet). Work with your partner to make the sort. Be sure you agree on how you decided to sort the decimals. You are going to sort them based on which benchmark decimal each on is closer to. Fit the Decimals into the columns below.

0	0.25	0.5	0.75	1
0.09	0.3	0.45	0.68	0.91
0.001	0.37			
1.03	0.29			

Trying It on Your Own

1. Dex said, "0.340 is closer to 300 than to the benchmark decimals." Do you agree with Dex?

a. Agree, because 300 is close to 340.

b. Agree, because they both have 3 in the hundreds place and a 0 in the ones place.

c. Disagree, because 0.340 is between 0.25 and 0.5.

d. Disagree, because 0.340 is between 0.5 and 1.

2. Sam ordered these 3 decimals from greatest to least, using benchmark decimals.

0.875 0.0640 0.4

Do you agree with his order?

a. Disagree, because 0.0640 is closer to 0 and 0.4 is closer to 0.5.

b. Agree, because 0.875 is closer to 0.75, 0.0640 is a little more than 0.5, and 0.4 is a little less than 0.5.

c. You cannot order decimals that do not have the same number of digits to the right of the decimal point.

d. It is impossible to decide whether 0.0640 is larger than 0.4 because they are both close to 0.5.

Trying It on Your Own

1. Dex said, "0.340 is closer to 300 than to the benchmark decimals." Do you agree with Dex?

a. Agree, because 300 is close to 340.

b. Agree, because they both have 3 in the hundreds place and a 0 in the ones place.

c. Disagree, because 0.340 is between 0.25 and 0.5.

d. Disagree, because 0.340 is between 0.5 and 1.

2. Sam ordered these 3 decimals from greatest to least, using benchmark decimals.

0.875 0.0640 0.4

Do you agree with his order?

a. Disagree, because 0.0640 is closer to 0 and 0.4 is closer to 0.5.

b. Agree, because 0.875 is closer to 0.75, 0.0640 is a little more than 0.5, and 0.4 is a little less than 0.5.

c. You cannot order decimals that do not have the same number of digits to the right of the decimal point.

d. It is impossible to decide whether 0.0640 is larger than 0.4 because they are both close to 0.5.

3. Which of the following is a true statement?

a. 0.87 = 0.63 because they are the same distance from 0.75.

b. 0.87 > 0.63 because 8 tenths is larger than 6 tenths.

c. 0.87 < 0.63 because 0.63 is farther to the left on the number line.

d. 0.87 < 0.63 because 0.63 is 0.13 away from 0.5, but 0.87 is 0.12 away from 0.75.

4. Select the correct order of these decimals from least to greatest:

0.275, 0.036, 0.413, and 0.028

a.	0.275	0.028	0.036	0.413
b.	0.028	0.036	0.413	0.275
c.	0.028	0.036	0.275	0.413
d.	0.413	0.275	0.036	0.028

3. Which of the following is a true statement?

a. 0.87 = 0.63 because they are the same distance from 0.75.

b. 0.87 > 0.63 because 8 tenths is larger than 6 tenths.

c. 0.87 < 0.63 because 0.63 is farther to the left on the number line.

d. 0.87 < 0.63 because 0.63 is 0.13 away from 0.5, but 0.87 is 0.12 away from 0.75.

4. Select the correct order of these decimals from least to greatest:

0.275, 0.036, 0.413, and 0.028

a.	0.275	0.028	0.036	0.413
b.	0.028	0.036	0.413	0.275
c.	0.028	0.036	0.275	0.413
d.	0.413	0.275	0.036	0.028

Wrapping It Up

What decimals that are larger than 1 might we use as benchmark decimals?

Wrapping It Up

What decimals that are larger than 1 might we use as benchmark decimals?

1.25, 1.50, 1.75, 2, etc.

Warming Up:

Write each number in expanded form.

1. 28.345 =

2. 6.01 =

3. 7.902 =

Warming Up:

Write each number in expanded form.

1. 28.345 = 20 + 8 + 0.3 + 0.04 + 0.005

2. 6.01 = 6 + 0.0 + 0.01

3. 7.902 = 7 + 0.9 + 0.00 + 0.002

Learning to Solve:

0.79 + 0.03 = 1.09

Is this reasonable?

1.47 + 0.91

Estimate:

Method used:

Sum:

Method used:

8.32 + 4.89

Estimate:

Method used:

Sum:

Method used:

Learning to Solve:

0.79 + 0.03 = 1.09

Is this reasonable?

It is not reasonable. 0.03 is close to 0 and 0.79 is close to 0.75, so the sum should be close to 0.75.

1.47 + 0.91

Estimate: Answers will vary depending on the method. Accept answers in the range of 1 to 2.5.

Method used: Benchmark decimals, front - end. If students truncate .91, their estimate will be 1. Other methods may be used.

Sum: 2.38

Method used: Lined up place value positions or expanded form

8.32 + 4.89

Estimate: Answers will vary depending on the method. Accept answers in the range of 12 to 15.

Method used: Benchmark decimals, front-end. Other methods may be used. Some students may use compatible numbers such as 10 and 5 to give an estimated sum of 15.

Sum: 13.21

Method used: Lined up place value positions or expanded form

17.03 + 26.98

Estimate:

Method used:

Sum:

Method used:

14.18 + 6.94

Estimate:

Method used:

Sum:

Method used:

17.03 + 26.98

Estimate: Answers will vary depending on the method. Accept answers in the range of 30 to 47.

Method used: Benchmark decimals, front-end. Other methods may be used.

Sum: 44.01

Method used: Lined up place value positions or expanded form

14.18 + 6.94

Estimate: Answers will vary depending on the method. Accept answers in the range of 20 to 22.

Method used: Benchmark decimals, front-end. Other methods may be used. If compatible number strategy is used, students may select 14 and 6 as the addends.

Sum: 21.12

Method used: Lined up place value positions or expanded form

Trying It on Your Own

1. Nora solved 4.51 + 2.3 in this way:

$$\begin{array}{r} 4.51 \\ +\ 2.3 \\ \hline 4.74 \end{array}$$

What error did she make?

a. Nora did not make a mistake. 4.74 is the correct sum.

b. Nora should have added 0.5 and 0.3 and 4 and 2 to get a sum of 6.81.

c. Nora should have put a 0 at the end of 2.3 and added to get a sum of 4.740.

d. Nora should have added to get 2.751.

2. Which of the following is the sum of 16.08 and 4.217?

a. 5.825

b. 20.1017

c. 20.297

d. 58.25

Trying It on Your Own

1. Nora solved 4.51 + 2.3 in this way:

$$\begin{array}{r} 4.51 \\ +\ 2.3 \\ \hline 4.74 \end{array}$$

What error did she make?

a. Nora did not make a mistake. 4.74 is the correct sum.

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c. Nora should have put a 0 at the end of 2.3 and added to get a sum of 4.740.

d. Nora should have added to get 2.751.

2. Which of the following is the sum of 16.08 and 4.217?

a. 5.825

b. 20.1017

c. 20.297

d. 58.25

3. Which addition problem has the sum of 14.45?

a. 6.4 + 8.5

b. 6.15 + 8.3

c. 8.15 + 6.4

d. 10.05 + 4.04

4. Kory used benchmark fractions to estimate the sum of 5.12 and 6.87. Which of the following would be Kory's estimate?

a. 11

b. 11.5

c. 13

d. 12

3. Which addition problem has the sum of 14.45?

a. 6.4 + 8.5

b. 6.15 + 8.3

c. 8.15 + 6.4

d. 10.05 + 4.04

4. Kory used benchmark fractions to estimate the sum of 5.12 and 6.87. Which of the following would be Kory's estimate?

a. 11

b. 11.5

c. 13

d. 12

Warming Up:

The following computation was done incorrectly.

4.05 + 0.632 = 1.037

1. How could you use estimation to explain why the answer isn't reasonable?

2. Identify the error.

3. Do the computation correctly.

Warming Up:

The following computation was done incorrectly.

4.05 + 0.632 = 1.037

1. How could you use estimation to explain why the answer isn't reasonable?

Answers will vary, but students could suggest that 4 + 1 = 5 or that 4 + 0.5 = 4.5.

2. Identify the error.

Did not line up place value positions, added the whole number as 0.4, 0.4 + 0.6 – 1.0

3. Do the computation correctly.

4.682

Learning to Solve:

Solve the following problems:

1. Sandra went to the store to buy 2 pounds of cheddar cheese for a dinner she wanted to make. No package of cheddar cheese was exactly 2 pounds. However, 1 package of cheddar cheese weighed 0.84 pounds and 1 package weighed 0.95 pounds.

A. Could these 2 packages of cheese be used to make her dinner? Why or why not?

B. Exactly how many pounds of cheddar cheese were in the 2 packages?

2. A magic square is a square array of numbers in which the sum of all rows, columns, and diagonals are the same. In this magic square, the sum is 15.3.

Complete this magic square by filling in the empty spaces with decimal numbers between 1 and 10.

6.12	1.02	
	5.1	
2.04		

Learning to Solve:

Solve the following problems:

1. Sandra went to the store to buy 2 pounds of cheddar cheese for a dinner she wanted to make. No package of cheddar cheese was exactly 2 pounds. However, 1 package of cheddar cheese weighed 0.84 pounds and 1 package weighed 0.95 pounds.

A. Could these 2 packages of cheese be used to make her dinner? Why or why not?

No, she would have a little less than 2 pounds.

B. Exactly how many pounds of cheddar cheese were in the 2 packages?

1.79 pounds

2. A magic square is a square array of numbers in which the sum of all rows, columns, and diagonals is the same. In this magic square, the sum is 15.3.

Complete this magic square by filling in the empty spaces with decimal numbers between 1 and 10.

6.12	1.02	8.16
7.14	5.1	3.06
2.04	9.18	4.08

3. Michael and John were in Paris, France. All of the measurements in Europe are in the metric system. They walked from their hotel to the Eiffel Tower. The distance is 1.265 kilometers. After they left the Eiffel Tower, they walked to a restaurant for lunch. While eating lunch, they figured out that they had walked 3.135 kilometers so far.

A. Estimate how many kilometers it is from the Eiffel Tower to the restaurant.

B. Find exactly how far it is from the Eiffel Tower to the restaurant.

3. Michael and John were in Paris, France. All of the measurements in Europe are in the metric system. They walked from their hotel to the Eiffel Tower. The distance is 1.265 kilometers. After they left the Eiffel Tower, they walked to a restaurant for lunch. While eating lunch, they figured out that they had walked 3.135 kilometers so far.

A. Estimate how many kilometers it is from the Eiffel Tower to the restaurant.

About 2 kilometers

B. Find exactly how far it is from the Eiffel Tower to the restaurant.

1.87 kilometers

Practicing Together:

Complete the two magic squares.

All rows, columns, and diagonals sum to 9.

		3.6
1.8	3.0	

All rows, columns, and diagonals sum to 12.6.

		4.8
3.6	6.6	

Practicing Together:

Complete the two magic squares.

All rows, columns, and diagonals sum to 9.

4.8	0.6	3.6
1.8	3.0	4.2
2.4	5.4	1.2

All rows, columns, and diagonals sum to 12.6.

6	1.8	4.8
3	4.2	5.4
3.6	6.6	2.4

Trying It on Your Own

1. Marshall ran 6.5 laps during the relay race. Then, Carl ran 4 laps. Tom finished the race by running 3.2 laps. What is the total number of laps in the relay race?

a. 13.7 laps

b. 10.1 laps

c. 9.11 laps

d. 9.15 laps

2. Frank rented a boat for 2 days. At the end of the 2 days, he had used 25.34 gallons of gas. Which expression shows a possible answer for how much gas Frank used each day?

a. 13.3 + 12.4

b. 13.2 + 12.14

c. 12.57 + 12.57

d. 10.3 + 15.4

Trying It on Your Own

1. Marshall ran 6.5 laps during the relay race. Then, Carl ran 4 laps. Tom finished the race by running 3.2 laps. What is the total number of laps in the relay race?

a. 13.7 laps

b. 10.1 laps

c. 9.11 laps

d. 9.15 laps

2. Frank rented a boat for 2 days. At the end of the 2 days, he had used 25.34 gallons of gas. Which expression shows a possible answer for how much gas Frank used each day?

a. 13.3 + 12.4

b. 13.2 + 12.14

c. 12.57 + 12.57

d. 10.3 + 15.4

3. Samantha planted a 4.75-foot pine tree in her yard. After a year, the tree had grown 2.5 feet. Samantha said that her tree is now 6.125 feet tall. Is she correct?

a. Yes, because 4 + 2 = 6, and 0.7 + 0.5 = 0.12. Then, you add the 5 to the end of the number and your answer is 6.125.

b. No, because 4.75 + 2.5 = 5.

c. No, the answer is 7.25 feet.

d. No, the answer is 7.5 feet.

4. Mr. Smith drove 8 hours on the first day of the vacation, 6.82 hours on the second day, and 9.05 hours on the third day. How many hours has he been driving?

a. 15.95 hours

b. 17.12 hours

c. 23.87 hours

d. 24.32 hours

3. Samantha planted a 4.75-foot pine tree in her yard. After a year, the tree had grown 2.5 feet. Samantha said that her tree is now 6.125 feet tall. Is she correct?

a. Yes, because 4 + 2 = 6, and 0.7 + 0.5 = 0.12. Then, you add the 5 to the end of the number and your answer is 6.125.

b. No, because 4.75 + 2.5 = 5.

c. No, the answer is 7.25 feet.

d. No, the answer is 7.5 feet.

4. Mr. Smith drove 8 hours on the first day of the vacation, 6.82 hours on the second day, and 9.05 hours on the third day. How many hours has he been driving?

a. 15.95 hours

b. 17.12 hours

c. 23.87 hours

d. 24.32 hours

Wrapping It Up

Write a problem that fits the following clues:

Clue 1: The difference is close to 5.

Clue 2: Both numbers in the problem are decimals.

Clue 3: Both numbers have 2 decimal places to the right of the decimal point.

What could be the 2 numbers I subtracted?

Wrapping It Up

Write a problem that fits the following clues:

Clue 1: The difference is close to 5.

Clue 2: Both numbers in the problem are decimals.

Clue 3: Both numbers have 2 decimal places to the right of the decimal point.

What could be the 2 numbers I subtracted?

Answers will vary; example answer: 10.13 – 4.97.

Learning to Solve:

With your partner, estimate the difference of each problem in this table. Write the estimates in the table. Do not compute the exact answer; instead, just estimate. Be sure you are able to explain how you arrived at your estimate.

Problem	Estimate
35.2 – 4.85	
62.89 – 39.9	
56.123 – 4.907 – 12.01	
459.75 – 12.23	
6 – 3.255 – 0.8	

Learning to Solve:

With your partner, estimate the difference of each problem in this table. Write the estimates in the table. Do not compute the exact answer; instead, just estimate. Be sure you are able to explain how you arrived at your estimate.

Problem	Estimate
35.2 – 4.85	answers will vary, accept the range of 26 to 31
62.89 – 39.9	answers will vary, accept the range of 20 to 30
56.123 – 4.907 – 12.01	answers will vary, accept the range of 38 to 45
459.75 – 12.23	answers will vary, accept the range of 390 to 450
6 – 3.255 – 0.8	answers will vary, accept the range of 1 to 3

Practicing Together:

Estimate the answer to each problem. Write your estimate and explain in words how you found it.

1. The driving distance between 2 cities is 2,443.79 miles. Your family has already driven 1,804.50 miles. About how many more miles do you need to drive to arrive at the destination?

2. Your grandparents and your family live 358.5 miles apart. Your family has driven 113.4 miles to visit your grandparents. About how many more miles do you need to drive to arrive at your grandparents' home?

3. Find 2 numbers that have at least 1 digit to the right of the decimal point and have an estimated difference of 15.0.

Practicing Together:

Estimate the answer to each problem. Write your estimate and explain in words how you found it.

1. The driving distance between 2 cities is 2,443.79 miles. Your family has already driven 1,804.50 miles. About how many more miles do you need to drive to arrive at the destination?

Accept a range of 500 to 1,000 miles. Explanations will vary, depending on the estimation method used.

2. Your grandparents and your family live 358.5 miles apart. Your family has driven 113.4 miles to visit your grandparents. About how many more miles do you need to drive to arrive at your grandparents' home?

Accept a range of 200 to 300 miles. Explanations will vary, depending on the estimation method used.

3. Find 2 numbers that have at least 1 digit to the right of the decimal point and have an estimated difference of 15.0.

Answers will vary; example answer: 19.6 – 5.1. Explanations will vary, depending on the estimation method used.

Trying It on Your Own

1. Juan flew a paper airplane 226.83 feet. His friend flew a paper airplane 19.5 feet less than that. About how far did his friend fly a paper airplane?

a. 345 feet

b. 205 feet

c. 175 feet

d. 150 feet

2. Which 2 decimal numbers have a difference of about 8?

a. 15.2 – 6.8

b. 28.75 – 15.32

c. 19.83 – 8.79

d. 37.45 – 8.03

Trying It on Your Own

1. Juan flew a paper airplane 226.83 feet. His friend flew a paper airplane 19.5 feet less than that. About how far did his friend fly a paper airplane?

a. 345 feet
b. 205 feet
c. 175 feet
d. 150 feet

2. Which 2 decimal numbers have a difference of about 8?

a. 15.2 – 6.8
b. 28.75 – 15.32
c. 19.83 – 8.79
d. 37.45 – 8.03

3. Estimate the difference: 38.02 – 11.9.

a. 20

b. 30

c. 19

d. 12

4. Estimate the difference: 29.875 – 15.1.

a. 15

b. 20

c. 21

d. 30

3. Estimate the difference: 38.02 – 11.9

a. 20
b. 30
c. 19
d. 12

4. Estimate the difference: 29.875 – 15.1

a. 15
b. 20
c. 21
d. 30

Wrapping It Up

Write a decimal number that can be found between 3.07 and 3.007.

Wrapping It Up

Write a decimal number that can be found between 3.07 and 3.007.

Answers will vary. For example, 3.0071, 3.008, or 3.0085

Warming Up:

Look at the numbers written in expanded form. Write their decimal numbers.

40 + 5 + 0.7 + 0.02 =

10 + 4 + 0.0 + 0.03 =

300 + 50 + 7 + 0.1+ 0.003 =

1,000 + 600 + 90 + 8 + 0.1 + 0.02 + 0.007 =

Warming Up:

Look at the numbers written in expanded form. Write their decimal numbers.

40 + 5 + 0.7 + 0.02 = 45.72

10 + 4 + 0.0 + 0.03 = 14.03

300 + 50 + 7 + 0.1+ 0.003 = 357.103

1,000 + 600 + 90 + 8 + 0.1 + 0.02 + 0.007 = 1,698.127

Learning to Solve:

45.72 – 21.3 =

Estimate: _____

Difference: _____

Learning to Solve:

45.72 – 21.3 =

Estimate: Accept a range of 20 to 30

Difference: 24.42

Practicing Together:

Estimate first and then subtract.

1. 39.47 – 32.16 =

Estimate: _____

Difference: _____

2. 54.38 – 24.87 =

Estimate: _____

Difference: _____

Estimate first and then subtract.

1. 39.47 – 32.16 =

Estimate: Accept a range of 5 to 10

Difference: 7.31

2. 54.38 – 24.87 =

Estimate: Accept a range of 20 to 30

Difference: 29.51

Trying It on Your Own

1. What is the best estimate of the difference of 38.725 – 6.01?

a. 44

b. 33

c. 38

d. 27

2. Find the difference: 38.725 – 6.01.

a. 44.735

b. 38.124

c. 32.715

d. 30.724

Trying It on Your Own

1. What is the best estimate of the difference of 38.725 – 6.01?

a. 44
b. 33
c. 38
d. 27

2. Find the difference: 38.725 – 6.01.

a. 44.735
b. 38.124
c. 32.715
d. 30.724

3. What is the best estimate of the difference of 8.76 – 2.46?

a. 600

b. 10

c. 6

d. 4

4. Find the difference: 9.337 – 1.162

a. 8.435

b. 8.235

c. 8.175

d. 8.075

3. What is the best estimate of the difference of 8.76 – 2.46?

a. 600

b. 10

c. 6

d. 4

4. Find the difference: 9.337 – 1.162

a. 8.435

b. 8.235

c. 8.175

d. 8.075

Wrapping It Up

Jared said, "It is possible to subtract 2 decimal numbers that have 2 digits to the right of the decimal point and get a difference that has only 1 digit to the right of the decimal point."

Do you agree with Jared? If so, give an example of a problem that proves Jared right. If you do not agree with Jared, explain why.

Wrapping It Up

Jared said, "It is possible to subtract 2 decimal numbers that have 2 digits to the right of the decimal point and get a difference that has only 1 digit to the right of the decimal point."

Do you agree with Jared? If so, give an example of a problem that proves Jared right. If you do not agree with Jared, explain why.

Answers will vary.

Yes, I agree with Jared because $5.32 - 5.12 = 0.20 = 0.2$

Warming Up:

Directions:

We are going to play Match It Up! You have 8 cards. Each card has a decimal number on it. You will work with your partner to match the cards with the decimal number on your sheet so that it forms a correct subtraction problem. Each card will be used once and only once.

Learning to Solve:

Cora weighs 103.74 pounds. Her twin sister, Nora, weighs 98.28 pounds. How much more does Cora weigh?

Estimate:

How much more does Cora weigh?

Describe how you solved.

Learning to Solve:

Cora weighs 103.74 pounds. Her twin sister, Nora, weighs 98.28 pounds. How much more does Cora weigh?

Estimate: 3 to 6 pounds

How much more does Cora weigh?

5.46 pounds

Describe how you solved.

Practicing Together:

1. Margo has 12.75 yards of cloth. The quilt she wants to make takes 19.5 yards of cloth. How many more yards of cloth does Margo need?

Estimate:

Difference:

2. Cal kept track of how many miles he rode his bike. The first week, he rode 26.38 miles. The second week, he rode 8.25 miles less. How far did he ride his bike the second week?

Estimate:

Difference:

3. Sammi saved $126.83. She bought a bike helmet for $36.74 for herself and a chew toy for $12.79 for her dog, Maggie. Does she have enough money left over to buy a rug for her bedroom that costs $88.97? Support your answer.

Estimate of money she has left:

Answer:

Practicing Together:

1. Margo has 12.75 yards of cloth. The quilt she wants to make takes 19.5 yards of cloth. How many more yards of cloth does Margo need?

Estimate: 5 to 8 yards

Difference: 6.75 yards

2. Cal kept track of how many miles he rode his bike. The first week, he rode 26.38 miles. The second week, he rode 8.25 miles less. How far did he ride his bike the second week?

Estimate: 16 to 20 miles

Difference: 18.13 miles

3. Sammi saved $126.83. She bought a bike helmet for $36.74 for herself and a chew toy for $12.79 for her dog, Maggie. Does she have enough money left over to buy a rug for her bedroom that costs $88.97? Support your answer.

Estimate of money she has left: $70 to $80

Answer: No, she has only $77.30 left over after buying the helmet and toy.

Trying It on Your Own

1. Terry subtracted 23.56 – 10.4 and found a difference of 22.52. Is his answer reasonable?

a. Yes, it is reasonable because he subtracted correctly.

b. Yes, it is reasonable because when you estimate, 23.56 is close to 24 and 10.4 is close to 1 and 24 – 1 = 23.

c. No, it is not reasonable because the answer should be close to 14.

d. No, it is not reasonable because the answer should be closer to 20.

2. In 2 weeks, Adam walked 25.75 miles, which is 5.8 miles farther than Bob walked. How far did Bob walk?

a. 25.17 miles

b. 20.15 miles

c. 19.95 miles

d. 18.72 miles

Trying It on Your Own

1. Terry subtracted 23.56 – 10.4 and found a difference of 22.52. Is his answer reasonable?

a. Yes, it is reasonable because he subtracted correctly.

b. Yes, it is reasonable because when you estimate, 23.56 is close to 24 and 10.4 is close to 1 and 24 – 1 = 23.

c. No, it is not reasonable because the answer should be close to 14.

d. No, it is not reasonable because the answer should be closer to 20.

2. In 2 weeks, Adam walked 25.75 miles, which is 5.8 miles farther than Bob walked. How far did Bob walk?

a. 25.17 miles

b. 20.15 miles

c. 19.95 miles

d. 18.72 miles

3. Which of the following would complete the equation correctly:
_____ – 15.006 = 31.18?

a. 46.186

b. 36.186

c. 26.186

d. 16.186

4. Monty and Jeb were both sick. Monty had a temperature of 102.1°. Jeb's temperature was 1.38° less. What was Jeb's temperature?

a. 35.9°

b. 100.72°

c. 101.28°

d. 103.48°

3. Which of the following would complete the equation correctly:
_____ – 15.006 = 31.18?

a. 46.186
b. 36.186
c. 26.186
d. 16.186

4. Monty and Jeb were both sick. Monty had a temperature of 102.1°. Jeb's temperature was 1.38° less. What was Jeb's temperature?

a. 35.9°
b. 100.72°
c. 101.28°
d. 103.48°

Wrapping It Up

45.82 – 3.61 =

2.48 + 3.12 =

10.45 – 8.35 =

Wrapping It Up

45.82 – 3.61 = 42.21

2.48 + 3.12 = 5.6 or 5.60

10.45 – 8.35 = 2.1 or 2.10

Warming Up:

Directions:

We are going to play Make Mine 1. Each pair has a deck of cards that has the kings, queens, jacks, and jokers removed. The number on the card represents the value. For example, a 7 represents 7. An ace represents 1 and a 10 represents 0. One person in your pair will be the dealer. (Teacher may want to designate dealer.)

The dealer will deal 4 cards to each of you. You will use the numbers represented by those cards to make 2 addends that when added together will result in a sum close to 1. You will record those addends on the Make Mine 1 Score Sheet and find the sum. For your score, you will record how far you are from 1. For example, if you have a sum of 0.92, you will record 0.08. If your sum is 1.16, you will record 0.16. When you have played those cards, they are put on the bottom of the deck and you will get 4 new cards. We will play 5 rounds. At the end of 5 rounds, add your scores for each round to get your total score. The player with the lower score is the winner.

Learning to Solve:

78 → Estimate: _____
× 1.8 → Estimate: _____

Estimate of product: _____

24 → Estimate: _____
× 12 → Estimate: _____

Estimate of product: _____

24 → Estimate: _____
× 1.2 → Estimate: _____

Estimate of product: _____

2.4 → Estimate: _____
× 12 → Estimate: _____

Estimate of product: _____

Learning to Solve: Answers will vary. Possible answers are given.

78 → Estimate: 70 to 100
× 1.8 → Estimate: 1 to 2

Estimate of product: Accept a range of 140 to 200

24 → Estimate: 20 to 25
× 12 → Estimate: 10

Estimate of product: Accept a range of 200 to 300

24 → Estimate: 20 to 25
× 1.2 → Estimate: 1 to 1.25

Estimate of product: Accept a range of 20 to 40

2.4 → Estimate 2, 2.5, 3
× 12 → Estimate 10, 15

Estimate of product Accept a range of 20 to 45

0.24 → Estimate: _____

× 12 → Estimate: _____

Estimate of product: _____

0.24 → Estimate: 0.25, 0.5, 1

× 12 → Estimate: 10

Estimate of product: Accept a range of 2 to 7.5

Trying It on Your Own

1. Hayley multiplied 16×5.3. Her product was 848. Which of the following is the best reasoning about Hayley's product?

a. Correct, because 16 is close to 20 and 5.3 is close to 50. $20 \times 50 = 1{,}000$.

b. Correct, because 16 is close to 10 and 5.3 is close to 60. $10 \times 60 = 600$.

c. Incorrect, because 16 is close to 20 and 5.3 is close to 5. $5 \times 20 = 100$.

d. Incorrect, because 16 is close to 20 and 5.3 is close to 1. $20 \times 1 = 20$.

2. Which is the best estimate of 0.02×1.79?

a. 0, because 0.02 is close to 0 and 1.79 is close to 2. $0 \times 2 = 0$.

b. 2, because 0.02 is close to 1 and 1.79 is close to 2. $1 \times 2 = 2$.

c. 4, because 0.02 is close to 2 and 1.79 is close to 2. $2 \times 2 = 4$.

d. 1, because 0.02 is close to 1 and 1.79 is close to 1. 1 x 1 = 1.

Trying It on Your Own

1. Hayley multiplied 16 × 5.3. Her product was 848. Which of the following is the best reasoning about Hayley's product?

a. Correct, because 16 is close to 20 and 5.3 is close to 50. 20 × 50 = 1,000.

b. Correct, because 16 is close to 10 and 5.3 is close to 60. 10 × 60 = 600.

c. Incorrect, because 16 is close to 20 and 5.3 is close to 5. 5 × 20 = 100.

d. Incorrect, because 16 is close to 20 and 5.3 is close to 1. 20 × 1 = 20.

2. Which is the best estimate of 0.02 × 1.79?

a. 0, because 0.02 is close to 0 and 1.79 is close to 2. 0 × 2 = 0.

b. 2, because 0.02 is close to 1 and 1.79 is close to 2. 1 × 2 = 2.

c. 4, because 0.02 is close to 2 and 1.79 is close to 2. 2 × 2 = 4.

d. 1, because 0.02 is close to 1 and 1.79 is close to 1. 1 x 1 = 1.

3. Which is the best estimate of 3.89×18.98?

a. 3, because 3.89 is close to 3 and 18.98 is close to 1. $3 \times 1 = 3$.

b. 60, because 3.89 is close to 3 and 18.98 is close to 20. $3 \times 20 = 60$.

c. 40, because 3.89 is close to 4 and 18.98 is close to 10. $4 \times 10 = 40$.

d. 80, because 3.89 is close to 4 and 18.98 is close to 20. $4 \times 20 = 80$.

4. Cam multiplied 4.8×5.7. His product was 27.36. Which of the following is the best reasoning about Cam's product?

a. Correct, because 4.8 is close to 5 and 5.7 is close to 6. $5 \times 6 = 30$.

b. Correct, because 4.8 is close to 4 and 5.7 is close to 5. $4 \times 5 = 20$.

c. Incorrect, because 4.8 is close to 4 and 5.7 is close to 10. $4 \times 10 = 40$.

d. Incorrect, because 4.8 is close to 5 and 5.7 is close to 10. $5 \times 10 = 50$.

3. Which is the best estimate of 3.89×18.98?

a. 3, because 3.89 is close to 3 and 18.98 is close to 1. $3 \times 1 = 3$.

b. 60, because 3.89 is close to 3 and 18.98 is close to 20. $3 \times 20 = 60$.

c. 40, because 3.89 is close to 4 and 18.98 is close to 10. $4 \times 10 = 40$.

d. 80, because 3.89 is close to 4 and 18.98 is close to 20. $4 \times 20 = 80$.

4. Cam multiplied 4.8×5.7. His product was 27.36. Which of the following is the best reasoning about Cam's product?

a. Correct, because 4.8 is close to 5 and 5.7 is close to 6. $5 \times 6 = 30$.

b. Correct, because 4.8 is close to 4 and 5.7 is close to 5. $4 \times 5 = 20$.

c. Incorrect, because 4.8 is close to 4 and 5.7 is close to 10. $4 \times 10 = 40$.

d. Incorrect, because 4.8 is close to 5 and 5.7 is close to 10. $5 \times 10 = 50$.

Wrapping It Up

$11 \times 2.1 =$

$1.93 \times 4 =$

$9 \times 0.09 =$

Wrapping It Up

$11 \times 2.1 =$ accept a range of 20 to 25

$1.93 \times 4 =$ accept a range of 4 to 10

$9 \times 0.09 =$ accept a range of 0 to 2

Warming Up:

Directions:

We are going to play the Estimation Sorting Game. You have a set of Estimation Sorting Cards and an Estimation Sorting Sheet. There are 3 columns on the sheet. Each card has a computation problem. Your task is to decide in your pair if the sum, difference, or product is closer to 10, 25, or 50. You cannot use a calculator or paper and pencil to find the answer. You need to use any of the strategies you have developed to estimate the answer and decide where to place the card. You have 4 minutes to make your decisions for the 10 cards, so try to make your estimate and place your card on the sheet in about 30 seconds or less.

Learning to Solve:

$$\begin{array}{r} 132 \\ \times\ 13 \\ \hline \end{array}$$

Estimate: _____

Product: _____

$$\begin{array}{r} 132 \\ \times\ 1.3 \\ \hline \end{array}$$

Estimate: _____

Product: _____

$$\begin{array}{r} 1.32 \\ \times\ 1.3 \\ \hline \end{array}$$

Estimate: _____

Product: _____

Learning to Solve:

$$\begin{array}{r} 132 \\ \times\ 13 \\ \hline \end{array}$$

Estimate: Accept a range of 1,300 to 2,000

Product: 1,716

$$\begin{array}{r} 132 \\ \times\ 1.3 \\ \hline \end{array}$$

Estimate: Accept a range of 130 to 200

Product: 171.6

$$\begin{array}{r} 1.32 \\ \times\ 1.3 \\ \hline \end{array}$$

Estimate: Accept a range of 1 to 3

Product: 1.716

Practicing Together:

Multiply: 47×38

Estimate: _____

Product: _____

Multiply: 47×3.8

Estimate: _____

Product: _____

Multiply: 4.7×38

Estimate: _____

Product: _____

Multiply: 47×0.38

Estimate: _____

Product: _____

Practicing Together:

Multiply: 47×38

Estimate: Accept a range of 1,200 to 2,000

Product: 1,786

Multiply: 47×3.8

Estimate: Accept a range of 120 to 200

Product: 178.6

Multiply: 4.7×38

Estimate: Accept a range of 120 to 200

Product: 178.6

Multiply: 47×0.38

Estimate: Accept a range of 12 to 20

Product: 17.86

Multiply: 0.47×38

Estimate: _____

Product: _____

Multiply: 47×0.038

Estimate: _____

Product: _____

What is the best estimate of the product of 4.7×0.038?

a. 47 because 0.038 is really close to 0

b. 0 because 47 is close to 50 and 0.038 is close to 0

c. 50 because 47 is close to 50 and 0.038 is close to 1

d. 2,000 because 47 is close to 50 and 0.038 is close to 40

Multiply: 0.47×38

Estimate: Accept a range of 12 to 20

Product: 17.86

Multiply: 47×0.038

Estimate: Accept a range of 1 to 5

Product: 1.786

What is the best estimate of the product of 4.7×0.038?

a. 47 because 0.038 is really close to 0

b. 0 because 47 is close to 50 and 0.038 is close to 0

c. 50 because 47 is close to 50 and 0.038 is close to 1

d. 2,000 because 47 is close to 50 and 0.038 is close to 40

Trying It on Your Own

1. Which of the following is the best range of estimates for the product of 14.3×1.3?

a. 1 to 4

b. 14 to 20

c. 100 to 140

d. 140 to 200

2. Tran found the product of 25×0.4. Which of the following is the correct product and explanation?

a. 100, because $25 \times 4 = 100$.

b. 100.0, because $25 \times 4 = 100$ and there should be 1 digit to the right of the decimal point.

c. 10.0, because $25 \times 4 = 100$ and there should be 1 digit to the right of the decimal point.

d. 1.0 because 0.4 is close to 1 and there should be 1 digit to the right of the decimal point.

Trying It on Your Own

1. Which of the following is the best range of estimates for the product of 14.3×1.3?

a. 1 to 4

b. 14 to 20

c. 100 to 140

d. 140 to 200

2. Tran found the product of 25×0.4. Which of the following is the correct product and explanation?

a. 100, because $25 \times 4 = 100$.

b. 100.0, because $25 \times 4 = 100$ and there should be 1 digit to the right of the decimal point.

c. 10.0, because $25 \times 4 = 100$ and there should be 1 digit to the right of the decimal point.

d. 1.0 because 0.4 is close to 1 and there should be 1 digit to the right of the decimal point.

3. Which is the best estimate of the product of 20.14×0.4?

a. 40, because 20.14 is close to 20 and 0.4 is close to 2. 2 times 20 is 40.

b. 10, because 20.14 is close to 20 and 0.4 is close to one-half. One-half of 20 is 10.

c. 5, because 20.14 is close to 20 and 0.4 is close to one-fourth. One-fourth of 20 is 5.

d. 1, because 20.14 is close to 2 and 0.4 is close to one-half. One-half of 2 is 1.

4. If the product of 275×17 is 4,675, what is the product of 2.75×0.17?

a. 467.5

b. 46.75

c. 4.675

d. 0.4675

3. Which is the best estimate of the product of 20.14×0.4?

a. 40, because 20.14 is close to 20 and 0.4 is close to 2. 2 times 20 is 40.

b. 10, because 20.14 is close to 20 and 0.4 is close to one-half. One-half of 20 is 10.

c. 5, because 20.14 is close to 20 and 0.4 is close to one-fourth. One-fourth of 20 is 5.

d. 1, because 20.14 is close to 2 and 0.4 is close to one-half. One-half of 2 is 1.

4. If the product of 275×17 is 4,675, what is the product of 2.75×0.17?

a. 467.5

b. 46.75

c. 4.675

d. 0.4675

Wrapping It Up

On your index card, write your estimate of the product of 19.875×92.478.

Wrapping It Up

On your index card, write your estimate of the product of 19.875×92.478.

a range from 1,800 to 2,000

Warming Up:

Directions:

We are going to play Multiplication Mania. Each pair has a deck of cards that has the kings, queens, jacks, and jokers removed. The number on the card represents the value. For example, a 7 represents 7. An ace represents 1 and a 10 represents 0. I will draw one card at a time from the deck. You will place that number in one of the blanks to create decimals numbers that when multiplied will get a product close to the number in the middle of your game sheet. You may place it anywhere on your sheet but once you place your number, you may not change it. When all of the blanks are filled, you will use your calculator to find the exact product for each of the close numbers. For your score, you will record how far you are from each of them and record it in the score column. You will add each of those scores to get your Total Score. The person with the lowest score wins.

Learning to Solve:

Jess babysits her baby brother for $8.50 per hour. How much will she make if she babysits 5 hours?

Estimate: _____

Answer: _____

Learning to Solve:

Jess babysits her baby brother for $8.50 per hour. How much will she make if she babysits 5 hours?

Estimate: Accept a range of $40 to $45

Answer: $42.50

Practicing Together:

1. 3 days a week, Jonah buys ice cream for $3.59 at the ice cream shop. How much does Jonah spend on ice cream each week?

Estimate: _____

Answer: _____

2. The width of a math book is 3.84 centimeters. There are 27 math books on the shelf. What is the total width of all the math books?

Estimate: _____

Answer: _____

3. Marshall bought a new bike. The bike cost $127.50. He paid $0.08 sales tax on each dollar. How much tax did Marshall pay?

Estimate: _____

Answer: _____

Practicing Together:

1. 3 days a week, Jonah buys ice cream for $3.59 at the ice cream shop. How much does Jonah spend on ice cream each week?

Estimate: Accept a range of $9 to $12

Answer: $10.77

2. The width of a math book is 3.84 centimeters. There are 27 math books on the shelf. What is the total width of all the math books?

Estimate: Accept a range of 75 to 120 cm

Answer: 103.68 cm

3. Marshall bought a new bike. The bike cost $127.50. He paid $0.08 sales tax on each dollar. How much tax did Marshall pay?

Estimate: Accept a range of $8 to $12

Answer: $10.20

Trying It on Your Own

1. Marianne is making 4 dog leashes for her dog-walking business. Each leash needs 4.85 feet of rope. What is the total length of rope that she should buy?

a. 16.4 feet

b. 19.4 feet

c. 164 feet

d. 194 feet

2. Brad bought 16 markers. Each marker cost $0.94. About how much money did Brad spend?

a. $9.00

b. $16.00

c. $90.00

d. $160.00

Trying It on Your Own

1. Marianne is making 4 dog leashes for her dog-walking business. Each leash needs 4.85 feet of rope. What is the total length of rope that she should buy?

a. 16.4 feet
b. 19.4 feet
c. 164 feet
d. 194 feet

2. Brad bought 16 markers. Each marker cost $0.94. About how much money did Brad spend?

a. $9
b. $16
c. $90
d. $160

3. What is the product of 8.3×0.7?

a. 0.581

b. 5.81

c. 58.1

d. 581

4. Sydney used her calculator to find the product of 0.215×0.358. What should her calculator show as the product?

a. 0.07697

b. 0.7697

c. 7.697

d. 76.97

3. What is the product of 8.3×0.7?

a. 0.581
b. 5.81
c. 58.1
d. 581

4. Sydney used her calculator to find the product of 0.215×0.358. What should her calculator show as the product?

a. 0.07697
b. 0.7697
c. 7.697
d. 76.97

Wrapping It Up

On your notecard, write a word problem using 2 decimal numbers. The solution process must use multiplication. Solve the problem on the back of the card.

Wrapping It Up

On your notecard, write a word problem using 2 decimal numbers. The solution process must use multiplication. Solve the problem on the back of the card.

Answers will vary but should be a word problem that includes 2 decimal numbers and multiplication.

Warming Up:

6 ÷ 3 = 2

_____ ÷ _____ = _____

If you think the quotient is greater than the dividend, circle "greater." If you think the quotient is less than the dividend, circle "less." Be sure you can explain why you selected your answer.

1. 340 ÷ 20 Greater Less

2. 340 ÷ 2 Greater Less

3. 340 ÷ 0.2 Greater Less

4. 340 ÷ 0.02 Greater Less

5. 340 ÷ 2.0 Greater Less

Warming Up:

6 ÷ 3 = 2

dividend ÷ divisor = quotient

If you think the quotient is greater than the dividend, circle "greater." If you think the quotient is less than the dividend, circle "less." Be sure you can explain why you selected your answer.

1. 340 ÷ 20 Greater (Less)

2. 340 ÷ 2 Greater (Less)

3. 340 ÷ 0.2 (Greater) Less

4. 340 ÷ 0.02 (Greater) Less

5. 340 ÷ 2.0 Greater (Less)

Practicing Together:

Directions:

In your pair, solve each problem on the Decimals Cards. You will place each Decimal Card in one of two different groups on the Less than the Dividend/More than the Dividend Sheet, based on the quotient. Do not use pencils or calculators; use the generalization and ideas we found in the lesson. Be prepared to explain how you decided.

Trying It on Your Own

1. Divide: 61.56 ÷ 3.8

a. 162

b. 16.2

c. 1.62

d. 0.162

2. Divide: 6.156 ÷ 3.8

a. 162

b. 16.2

c. 1.62

d. 0.162

Trying It on Your Own

1. Divide: 61.56 ÷ 3.8

a. 162
b. 16.2
c. 1.62
d. 0.162

2. Divide: 6.156 ÷ 3.8

a. 162
b. 16.2
c. 1.62
d. 0.162

3. Lynn divided 26.82 ÷ 0.9. Her quotient was 298. Is her quotient reasonable?

a. Yes, the quotient should be larger than the dividend because 0.9 is less than 1.

b. Yes, because 26.82 is close to 26 and 0.9 is close to 10. And 26 ÷ 10 = 260.

c. No, because 26.82 is close to 30 and 0.9 is close to 1. And 30 ÷ 1 = 30.

d. No, because 26.82 is close to 300 and 0.9 is close to 10. And 300 ÷ 10 = 30.

4. Divide: 37.08 ÷ 0.06

a. 618

b. 61.8

c. 6.18

d. 0.618

3. Lynn divided 26.82 ÷ 0.9. Her quotient was 298. Is her quotient reasonable?

a. Yes, the quotient should be larger than the dividend because 0.9 is less than 1.

b. Yes, because 26.82 is close to 26 and 0.9 is close to 10. And 26 ÷ 10 = 260.

c. No, because 26.82 is close to 30 and 0.9 is close to 1. And 30 ÷ 1 = 30.

d. No, because 26.82 is close to 300 and 0.9 is close to 10. And 300 ÷ 10 = 30.

4. Divide: 37.08 ÷ 0.06

a. 618

b. 61.8

c. 6.18

d. 0.618

Wrapping It Up

On your index card, write a division problem that has a quotient greater than the dividend. Solve the problem on the back of the card.

Warming Up:

Find a Place Decimal Game Directions

1. You will play in pairs. The person on the left is Player A. The person on the right is Player B.

2. The goal of the game is to create a decimal number, using the digits 0 through 9, that is as close as possible to the target decimal number in the center of the page: 0, 1, 5, 10.

3. To create the decimal numbers, the teacher will draw a card from this deck and show it to you. The deck contains the 2 through 9 cards. The 10 card represents 0 and the ace represents 1. There are 4 of each number in the deck.

4. The first card I draw will be for Player A. Player A may put the number on the card in any place value position that is blank on his/her side of the game sheet. Once the card is drawn, it will not be drawn again.

5. Player B will get the next card. That player will place the number in any place value position that is blank on his/her side of the game sheet.

6. The teacher will keep drawing cards until all of the blanks are filled.

7. Once you place a number in a box, you may not change the number or move it.

8. You must play the number on your turn. In other words, you cannot save the number and play it later.

Scoring Directions

1. To score, you and your partner will subtract the target number and the number you created and place the score in the box next to the target number on your side of the game sheet. The difference will always be positive, so you should subtract the smaller number from the larger number.

2. After you find all the differences, add them. That will give you your total score.

3. The person with the least number of points wins.

Learning to Solve:

The trip to Washington was 252 miles. It took exactly 3.5 hours to drive. What was the average miles per hour?

Estimate: _____

Answer: _____

Learning to Solve:

The trip to Washington was 252 miles. It took exactly 3.5 hours to drive. What was the average miles per hour?

Estimate: About 60 to 80 miles per hour

Answer: 72 miles per hour; how students solve may vary, such as dividing the number of miles by the number of hours to drive

Practicing Together:

1. My friend said that if you multiply his height by 6, your product is 34.5 feet. How tall is my friend in feet?

Estimate: _____

Answer: _____

2. Cordell is making shelves that are 75.5 centimeters long each. He has a board that is 377.5 centimeters long. How many shelves can he make from that board?

Estimate: _____

Answer: _____

3. The ice cream store uses 27.25 quarts of milk a day. The store received a shipment of 163.5 quarts of milk. How many days will the milk last?

Estimate: _____

Answer: _____

Practicing Together:

1. My friend said that if you multiply his height by 6, your product is 34.5 feet. How tall is my friend in feet?

Estimate: Accept a range of 5 to 6 feet

Answer: 5.75 feet

2. Cordell is making shelves that are 75.5 centimeters long each. He has a board that is 377.5 centimeters long. How many shelves can he make from that board?

Estimate: Accept a range of 4 to 6

Answer: 5 shelves

3. The ice cream store uses 27.25 quarts of milk a day. The store received a shipment of 163.5 quarts of milk. How many days will the milk last?

Estimate: Accept a range of 5 to 7 days

Answer: 6 days

Trying It on Your Own

1. The diameter of the Kapok tree, which is the largest tree in the Amazon, is approximately 10.56 feet. What is the radius of this tree? (Remember that a radius is half of the diameter.)

a. 21.12 feet

b. 12.56 feet

c. 10 feet

d. 5.28 feet

2. The Jones family spends $1,075.44 per year on cable service. About how much does the Jones family spend per month on cable service?

a. About $100 per month

b. About $90 per month

c. About $80 per month

d. About $70 per month

Trying It on Your Own

1. The diameter of the Kapok tree, which is the largest tree in the Amazon, is approximately 10.56 feet. What is the radius of this tree? (Remember that a radius is half of the diameter.)

a. 21.12 feet
b. 12.56 feet
c. 10 feet
d. 5.28 feet

2. The Jones family spends $1,075.44 per year on cable service. About how much does the Jones family spend per month on cable service?

a. About $100 per month
b. About $90 per month
c. About $80 per month
d. About $70 per month

3. Joe went to the discount store, where everything sells for $2.99 each. If he spent $80.73, how many items did he buy?

a. 40 items

b. 35 items

c. 27 items

d. 22 items

4. Sheri's mom bought ribbon to make the cheerleaders' bows. She paid $0.67 per foot for the ribbon. She spent $10.72. How many feet of ribbon did she buy?

a. 160 feet

b. 16 feet

c. 1.6 feet

d. 0.16 feet

3. Joe went to the discount store, where everything sells for $2.99 each. If he spent $80.73, how many items did he buy?

a. 40 items

b. 35 items

c. 27 items

d. 22 items

4. Sheri's mom bought ribbon to make the cheerleaders' bows. She paid $0.67 per foot for the ribbon. She spent $10.72. How many feet of ribbon did she buy?

a. 160 feet

b. 16 feet

c. 1.6 feet

d. 0.16 feet

Wrapping It Up

Write "T" for true if you think the answer is correct or "F" for false, if you think the answer is incorrect. The digits in the answer are correct, but the placement of the decimals may be incorrect. If the answer is incorrect, explain why.

1. $40 \div 3.2 = 1.25$

2. $16 \times 0.44 = 7.04$

3. $0.8 \div 10 = 0.08$

4. $0.53 \times 5 = 0.265$

Wrapping It Up

Write "T" for true if you think the answer is correct or "F" for false, if you think the answer is incorrect. The digits in the answer are correct, but the placement of the decimals may be incorrect. If the answer is incorrect, explain why.

1. $40 \div 3.2 = 1.25$

F The correct answer is 12.5.

2. $16 \times 0.44 = 7.04$

T

3. $0.8 \div 10 = 0.08$

T

4. $0.53 \times 5 = 0.265$

F The correct answer is 2.65.

Warming Up:

Find a Place Decimal Game Directions

1. You will play in pairs. The person on the left is Player A. The person on the right is Player B.

2. The goal of the game is to create a decimal number, using the digits 0 through 9, that is as close as possible to the target decimal number in the center of the page: 0, 1, 5, 10.

3. To create the decimal numbers, the teacher will draw a card from this deck and show it to you. The deck contains the 2 through 9 cards. The 10 card represents 0 and the ace represents 1. There are 4 of each number in the deck.

4. The first card I draw will be for Player A. Player A may put the number on the card in any place value position that is blank on his/her side of the game sheet. Once the card is drawn, it will not be drawn again.

5. Player B will get the next card. That player will place the number in any place value position that is blank on his/her side of the game sheet.

6. The teacher will keep drawing cards until all of the blanks are filled.

7. Once you place a number in a box, you may not change the number or move it.

8. You must play the number on your turn. In other words, you cannot save the number and play it later.

Scoring Directions

1. To score, you and your partner will subtract the target number and the number you created and place the score in the box next to the target number on your side of the game sheet. The difference will always be positive, so you should subtract the smaller number from the larger number.

2. After you find all the differences, add them. That will give you your total score.

3. The person with the least number of points wins.

Learning to Solve:

1. Selena bought 27.5 pounds of mulch and 38.6 pounds of soil for her garden. These items normally sold for $1.75 per pound, but she got them on sale for $1.50 per pound. How much did she spend on her garden supplies?

Estimate: _____

Answer: _____

2. Del had a phone plan for his international long-distance calls. The first 12 minutes cost $2.20. After 12 minutes, each minute costs $0.35. Del talked on a call for 33 minutes. How much did that phone call cost?

Estimate: _____

Answer: _____

Learning to Solve:

1. Selena bought 27.5 pounds of mulch and 38.6 pounds of soil for her garden. These items normally sold for $1.75 per pound, but she got them on sale for $1.50 per pound. How much did she spend on her garden supplies?

Estimate: Accept a range of $90 to $110

Answer: $99.15

2. Del had a phone plan for his international long-distance calls. The first 12 minutes cost $2.20. After 12 minutes, each minute costs $0.35. Del talked on a call for 33 minutes. How much did that phone call cost?

Estimate: Accept a range of $8 to $12

Answer: $9.55

Practicing Together:

Identify the rule that was used to create each pattern. Then name the next 3 decimals. Be able to explain how you decided on the rule.

A. 94.8, 94.3, 92.8, 90.3, _____ , _____ , _____

B. 64.23, 69.93, 74.73, 80.43, _____ , _____ , _____

C. 12.72, 22.71, 31.59, 39.36, _____ , _____ , _____

Practicing Together:

Identify the rule that was used to create each pattern. Then name the next 3 decimals. Be able to explain how you decided on the rule.

A. 94.8, 94.3, 92.8, 90.3, 86.8 , 82.3 , 76.8

Subtract 0.5, 1.5, 2.5, 3.5, etc. from the previous number.

B. 64.23, 69.93, 74.73, 80.43, 85.23 , 90.93 , 95.73

Add 5.7, 4.8, 5.7, 4.8, etc. to the previous number.

C. 12.72, 22.71, 31.59, 39.36, 46.02 , 51.57 , 56.01

Add 9.99, 8.88, 7.77, 6.66, etc. to the previous number.

Trying It on Your Own

1. What is the next number in the pattern?

54.4 55.5 56.6 57.7 58.8 59.9

a. 60.0
b. 60.1
c. 61.0
d. 61.1

2. What is the next number in the pattern?

56.8 28.4 14.2 7.1

a. 3.5
b. 3.55
c. 3.75
d. 3.9

Trying It on Your Own

1. What is the next number in the pattern?

54.4 55.5 56.6 57.7 58.8 59.9

a. 60.0
b. 60.1
c. 61.0
d. 61.1

2. What is the next number in the pattern?

56.8 28.4 14.2 7.1

a. 3.5
b. 3.55
c. 3.75
d. 3.9

3. What is the product of 0.04×0.006?

a. 0.00024

b. 0.0024

c. 0.024

d. 0.24

4. Armon bought 23.6 pounds of potatoes. Each pound cost $1.45. About how much did Armon spend on potatoes?

a. $14

b. $23

c. $35

d. $50

3. What is the product of 0.04×0.006?

a. 0.00024

b. 0.0024

c. 0.024

d. 0.24

4. Armon bought 23.6 pounds of potatoes. Each pound cost $1.45. About how much did Armon spend on potatoes?

a. $14

b. $23

c. $35

d. $50

Appendices

Decimals

Warming Up:

For each whole number, fill in the blanks.

1. 32 is _____ tens and _____ ones.

2. 16 is _____ ten and _____ ones.

3. 458 is _____ hundreds, _____ tens, and _____ ones.

Warming Up:

For each whole number, fill in the blanks.

1. 32 is 3 tens and 2 ones.

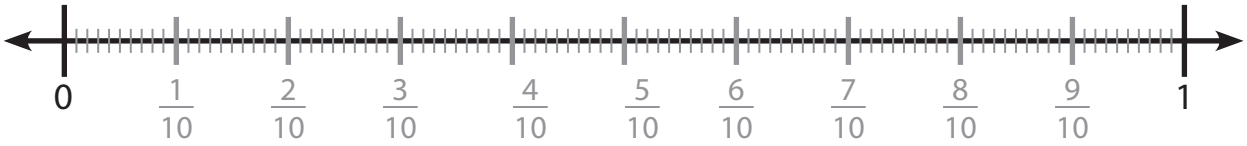
2. 16 is 1 ten and 6 ones.

3. 458 is 4 hundreds, 5 tens, and 8 ones.

Learning to Solve:

4 4 4 . 4

Learning to Solve:



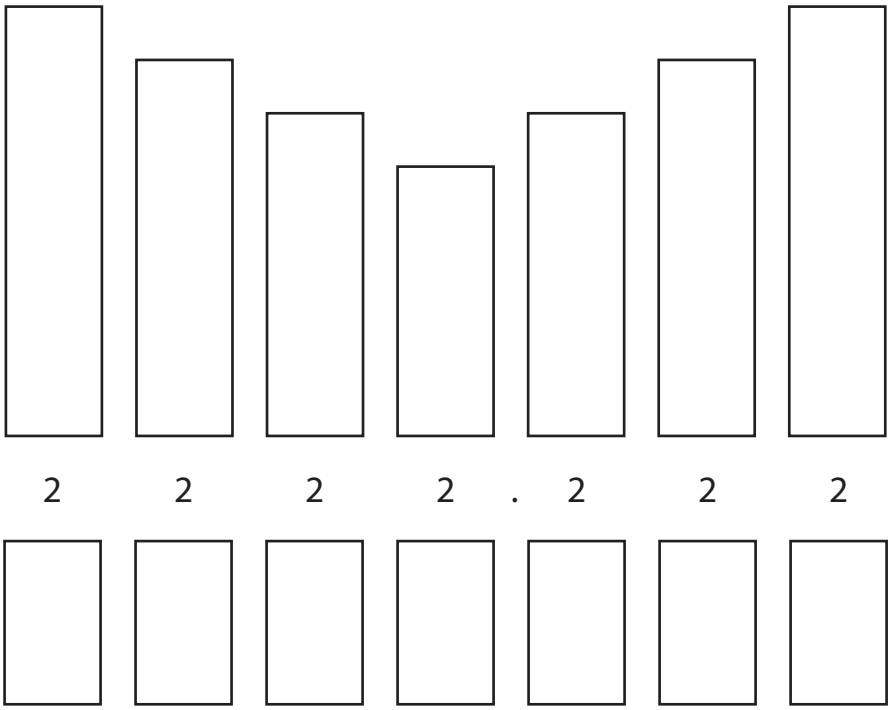
100	10	1		tenths
4	4	4	.	4
400	40	4		$\frac{4}{10}$

Practicing Together:

1. Using the diagram below of the number 2,222.222:

A. Write the place value in words in the box above each digit.

B. Write the numeric value of the digit in the box below each digit.



2. What is the place value of the 5 in 3.805? _____

3. Write a decimal number that has a 6 in the hundredths place. _____

4. What is the place value of the 0 in 20.1? _____

5. How many thousandths are in 1,467.983? _____

6. What is the value of the digit 9 in 14.693? _____

7. What is the value of the digit 7 in 8.072? _____

8. Write a decimal number that has a 2 in the tens place and a 2 in the tenths place.

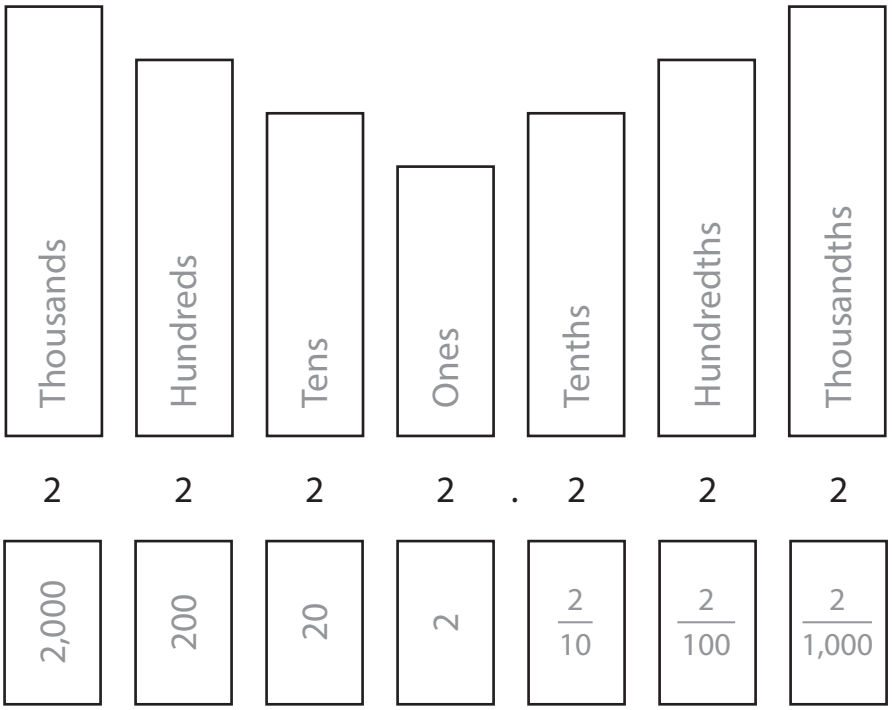
_____

Practicing Together:

1. Using the diagram below of the number 2,222.22:

A. Write the place value in words in the box above each digit.

B. Write the numeric value of the digit in the box below each digit.



2. What is the place value of the 5 in 3.805? thousandths

3. Write a decimal number that has a 6 in the hundredths place. Answers will vary, such as 3.267

4. What is the place value of the 0 in 20.1? ones

5. How many thousandths are in 1,467.983? 3

6. What is the value of the digit 9 in 14.693? $\frac{9}{100}$ or 9 hundredths

7. What is the value of the digit 7 in 8.072? $\frac{7}{100}$ or 7 hundredths

8. Write a decimal number that has a 2 in the tens place and a 2 in the tenths place.

Answers will vary, such as 327.258

Trying It on Your Own

1. Which of the following is a decimal number with a 5 in the hundredths place?

a. 58.257

b. 56.3

c. 3.125

d. 504.385

2. Marsha said the digit 2 is in the tenths place in the number 36.129. Is she correct?

a. Yes, because the 2 is 2 places to the right of the decimal point, which is the tenths place.

b. Yes, because there is a 2 in the tens place.

c. No, because 9 is in the tenths place.

d. No, because 1 is in the tenths place.

Trying It on Your Own

1. Which of the following is a decimal number with a 5 in the hundredths place?

a. 58.257

b. 56.3

c. 3.125

d. 504.385

2. Marsha said the digit 2 is in the tenths place in the number 36.129. Is she correct?

a. Yes, because the 2 is 2 places to the right of the decimal point, which is the tenths place.

b. Yes, because there is a 2 in the tens place.

c. No, because 9 is in the tenths place.

d. No, because 1 is in the tenths place.

3. Which of the following decimal numbers has a digit with a value of $\frac{8}{1{,}000}$?

a. 8,103.45

b. 4.082

c. 0.008

d. 15.7698

4. What is the place value of the digit 1 in the decimal number 3.014?

a. Tenths

b. Hundredths

c. Thousandths

d. Ones

3. Which of the following decimal numbers has a digit with a value of $\frac{8}{1,000}$?

a. 8,103.45

b. 4.082

c. 0.008

d. 15.7698

4. What is the place value of the digit 1 in the decimal number 3.014?

a. Tenths

b. Hundredths

c. Thousandths

d. Ones

Wrapping It Up

Fill in the blanks with the correct answers.

1. 16.38 is 1 ten, _____ ones, _____ tenths, and 8 hundredths.

2. 4.599 is _____ ones, _____ tenths, 9 hundredths, and _____ thousandths.

3. 0.157 is _____ ones, 1 _____, 5 _____, and _____ thousandths.

4. 28.60 is 2 _____, _____ ones, 6 _____, and 0 _____.

Wrapping It Up

Fill in the blanks with the correct answers.

1. 16.38 is 1 ten, 6 ones, 3 tenths, and 8 hundredths.

2. 4.599 is 4 ones, 5 tenths, 9 hundredths, and 9 thousandths.

3. 0.157 is 0 ones, 1 tenth, 5 hundredths, and 7 thousandths.

4. 28.60 is 2 tens, 8 ones, 6 tenths, and 0 hundredths.

Warming Up:

Put the list of fractions in order from greatest to least:

$\frac{2}{3}$ $\frac{1}{4}$ $\frac{5}{6}$ $\frac{5}{8}$

Defend your answer in one of the following ways.

- **A.** Draw models of the fractions.
- **B.** Use benchmark fractions.
- **C.** Explain exactly how you decided the order.

Warming Up:

Put the list of fractions in order from greatest to least:

$\frac{2}{3}$ $\frac{1}{4}$ $\frac{5}{6}$ $\frac{5}{8}$

$\frac{5}{6}, \frac{2}{3}, \frac{5}{8}, \frac{1}{4}$

Defend your answer in one of the following ways.

- **A.** Draw models of the fractions.
- **B.** Use benchmark fractions.
- **C.** Explain exactly how you decided the order.

Learning to Solve:

How would you decide which is the greater decimal number?

4.38 4.362

Arrange the decimal numbers from greatest to least.

3.82 11.1 3.8065 5 3.011

Closest whole number:

Learning to Solve:

How would you decide which is the greater decimal number?

4.38 4.362

Answers will vary, such as the digits are the same in the ones and tenths place, so we move to the hundredths place, where 8 one-hundredths is greater than 6 one-hundredths

Arrange the decimal numbers from greatest to least.

	3.82	11.1	3.8065	5	3.011
Closest whole number:	4	11	4	5	3

11.1, 5, 3.82, 3.8065, 3.011

Practicing Together:

1. Given the decimal number 0.87:

A. Is 0.87 closer to 0 or 1?

B. Is 0.87 closer to 0.8 or 0.9?

2. Given the decimal number 0.813:

A. Is 0.813 closer to 0 or 1?

B. Is 0.813 closer to 0.8 or 0.9?

C. Is 0.813 closer to 0.81 or 0.82?

3. Using < or >, write the relationship between 0.87 and 0.813.

_____

4. Put the decimal numbers in order from greatest to least: 20.9, 20.03, 20.89, 19.999.

Practicing Together:

1. Given the decimal number 0.87:

A. Is 0.87 closer to 0 or 1?

B. Is 0.87 closer to 0.8 or 0.9?

2. Given the decimal number 0.813:

A. Is 0.813 closer to 0 or 1?

B. Is 0.813 closer to 0.8 or 0.9?

C. Is 0.813 closer to 0.81 or 0.82?

3. Using < or >, write the relationship between 0.87 and 0.813.

0.87 > 0.813 OR 0.813 < 0.87

4. Put the decimal numbers in order from greatest to least: 20.9, 20.03, 20.89, 19.999.

20.9 20.89 20.03 19.999

5. Which statement gives the correct reasoning about the relationship among 0.25, 0.243, and 0.2?

a. 0.25 is greater than 0.243 and 0.2 because written in fraction form, $\frac{250}{1{,}000}$ is greater than $\frac{243}{1{,}000}$ or $\frac{200}{1{,}000}$.

b. 0.243 is greater than 0.25 and 0.2 because it has more digits to the right of the decimal point.

c. 0.2 is greater than 0.25 and 0.243 because it represents $\frac{2}{10}$.

d. They are all equal because they have 2 tenths as the first digit to the right of the decimal point.

5. Which statement gives the correct reasoning about the relationship among 0.25, 0.243, and 0.2?

a. 0.25 is greater than 0.243 and 0.2 because written in fraction form, $\frac{250}{1{,}000}$ is greater than $\frac{243}{1{,}000}$ or $\frac{200}{1{,}000}$.

b. 0.243 is greater than 0.25 and 0.2 because it has more digits to the right of the decimal point.

c. 0.2 is greater than 0.25 and 0.243 because it represents $\frac{2}{10}$.

d. They are all equal because they have 2 tenths as the first digit to the right of the decimal point.

Trying It on Your Own

1. Mike read the number 2.35 as "2 and 35 hundredths." Did he read it correctly?

a. No, he should read it as "2 point 35 hundredths."

b. No, he should read it as "2 and 3 five-tenths."

c. No, he should read it as "2 point 3 five-tenths."

d. Yes, he is correct.

2. Which statement gives the correct reasoning about the relationship among 0.5, 0.47, and 0.495?

a. 0.5 is greater than 0.47 because 5 is greater than 4, but 0.5 is less than 0.495 because 0.495 has 3 digits after the decimal point and 0.5 has only 1 digit after the decimal point.

b. 0.5 is not greater than 0.47 because 0.5 has only 1 digit after the decimal point and 0.47 has 2 digits after the decimal point.

c. 0.5 is greater than 0.47 because 0.5 is the same as one-half and 0.47 is not quite one-half. 0.5 is greater than 0.495 because 0.495 is also not quite one-half.

d. 0.5 is less than both 0.47 and 0.495 because 0.5 has only 1 digit after the decimal point.

Trying It on Your Own

1. Mike read the number 2.35 as "2 and 35 hundredths." Did he read it correctly?

a. No, he should read it as "2 point 35 hundredths."

b. No, he should read it as "2 and 3 five-tenths."

c. No, he should read it as "2 point 3 five-tenths."

d. Yes, he is correct.

2. Which statement gives the correct reasoning about the relationship among 0.5, 0.47, and 0.495?

a. 0.5 is greater than 0.47 because 5 is greater than 4, but 0.5 is less than 0.495 because 0.495 has 3 digits after the decimal point and 0.5 has only 1 digit after the decimal point.

b. 0.5 is not greater than 0.47 because 0.5 has only 1 digit after the decimal point and 0.47 has 2 digits after the decimal point.

c. 0.5 is greater than 0.47 because 0.5 is the same as one-half and 0.47 is not quite one-half. 0.5 is greater than 0.495 because 0.495 is also not quite one-half.

d. 0.5 is less than both 0.47 and 0.495 because 0.5 has only 1 digit after the decimal point.

3. Put the decimals 2.124, 2.03, 2.9, and 2.44 in order from least to greatest.

a. 2.03 2.124 2.44 2.9

b. 2.9 2.03 2.44 2.124

c. 2.03 2.44 2.124 2.9

d. 2.124 2.03 2.44 2.9

4. True or false: $17.11 < 17.2$?

a. True, because you always put the greater number after the lesser number.

b. True, because 17.11 and 17.2 both have 17 as the whole number, but the next digit in the tenths place is greater in 17.2 than in 17.11.

c. False, because 17.11 has a greater number of digits than 17.2.

d. False, because $\frac{11}{100}$ is greater than $\frac{2}{10}$.

3. Put the decimals 2.124, 2.03, 2.9, and 2.44 in order from least to greatest.

a. 2.03 2.124 2.44 2.9

b. 2.9 2.03 2.44 2.124

c. 2.03 2.44 2.124 2.9

d. 2.124 2.03 2.44 2.9

4. True or false: 17.11 < 17.2?

a. True, because you always put the greater number after the lesser number.

b. True, because 17.11 and 17.2 both have 17 as the whole number, but the next digit in the tenths place is greater in 17.2 than in 17.11.

c. False, because 17.11 has a greater number of digits than 17.2.

d. False, because $\frac{11}{100}$ is greater than $\frac{2}{10}$.

Wrapping It Up

Write 3 sentences to explain how you would decide whether 15.34 is greater than or less than 15.304.

1. _____

2. _____

3. _____

Wrapping It Up

Write 3 sentences to explain how you would decide whether 15.34 is greater than or less than 15.304.

Answers may vary, but may include

1. Use benchmark decimals.

2. Determine the whole number it is closest to.

3. Compare the digits in each place.

Warming Up:

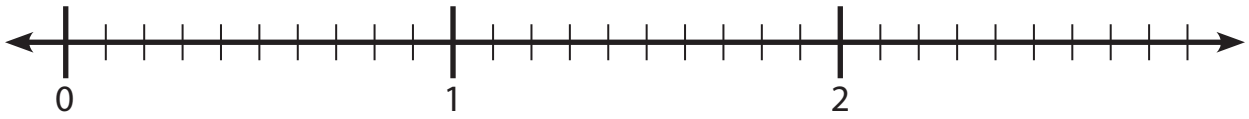
On each number line, show where you started by writing an "S," use arrows to indicate what moves you made, and show where you ended by writing an "E."

Then, write the equation that symbolizes your actions below the number line.

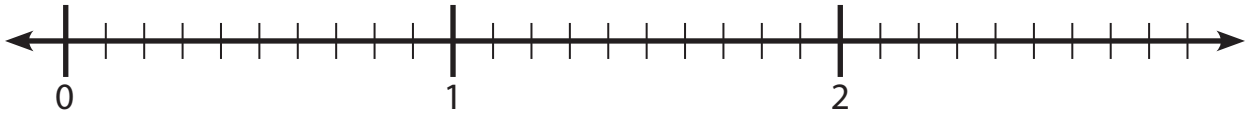
Example: Where do you stop when you start at 0.2 and go 5 tenths to the right?

(0.2 + 0.5 = 0.7)

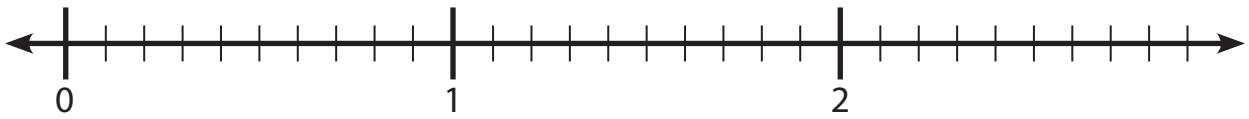
1. Where do you stop when you start at 0.6 and go 7 tenths to the right?



2. Where do you stop when you start at 1.8 and go 3 tenths to the left?



3. Write a question like #1 or #2 that will result in an answer of 0.9. On the number line, model the problem and write the equation.



Warming Up:

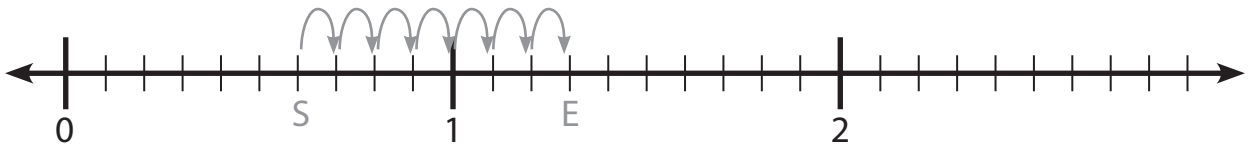
On each number line, show where you started by writing an "S," use arrows to indicate what moves you made, and show where you ended by writing an "E."

Then, write the equation that symbolizes your actions below the number line.

Example: Where do you stop when you start at 0.2 and go 5 tenths to the right?

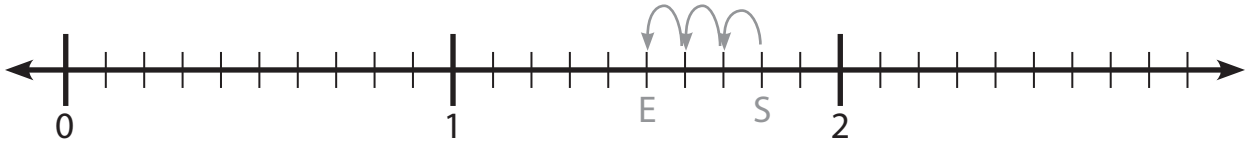
(0.2 + 0.5 = 0.7)

1. Where do you stop when you start at 0.6 and go 7 tenths to the right?



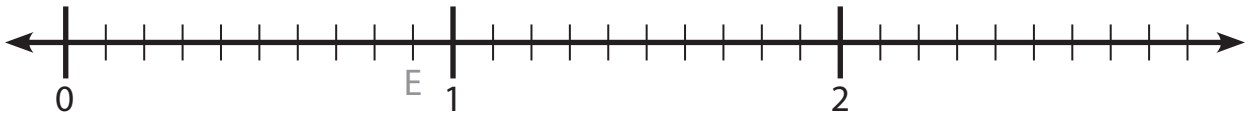
(0.6 + 0.7 = 1.3)

2. Where do you stop when you start at 1.8 and go 3 tenths to the left?



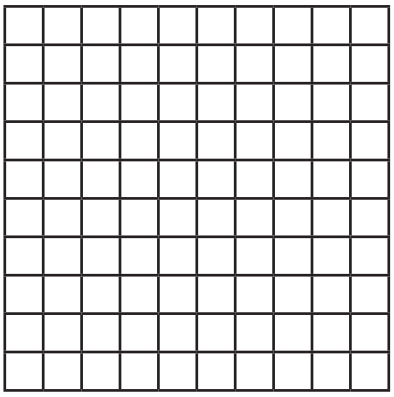
(1.8 – 0.3 = 1.5)

3. Write a question like #1 or #2 that will result in an answer of 0.9. On the number line, model the problem and write the equation.



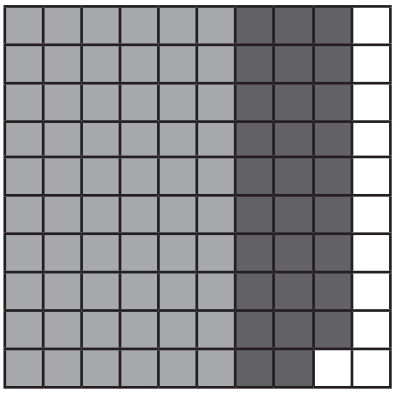
Answers will vary.

Learning to Solve:



Equation that symbolically represents this model:

Learning to Solve:



Equation that symbolically represents this model:

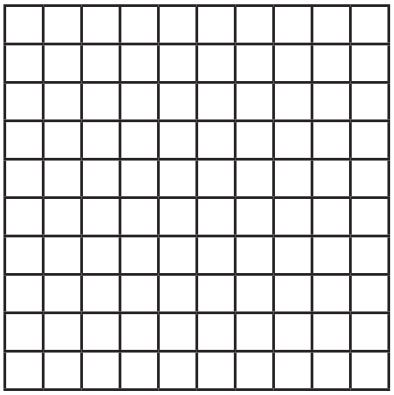
$0.6 + 0.29 = 0.89$

Practicing Together:

Addition

1. Estimate the sum of 0.24 and 0.29. _____

2. Represent 0.24 + 0.29 on the grid. Use a different-colored marker, crayon, or pencil for each decimal number.



3. 0.24 + 0.29 = _____

4. Often, we see the previous problem written as:

$$\begin{array}{r} {\scriptstyle 1} \\ 0.24 \\ +\ 0.29 \\ \hline \end{array}$$

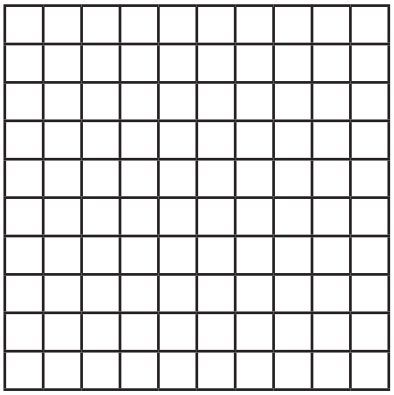
Why is there a 1 above the tenths column?

Practicing Together:

Addition

1. Estimate the sum of 0.24 and 0.29. Accept a range of 0.5 to 0.6

2. Represent 0.24 + 0.29 on the grid. Use a different-colored marker, crayon, or pencil for each decimal number.



Answers will vary. Accept any shading that matches the decimal numbers.

3. 0.24 + 0.29 = 0.53

4. Often, we see the previous problem written as:

$$\begin{array}{r} {\scriptstyle 1} \\ 0.24 \\ +\ 0.29 \\ \hline \end{array}$$

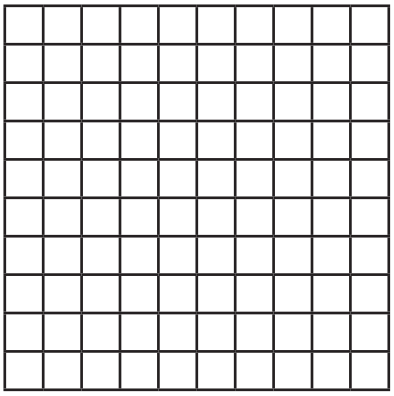
Why is there a 1 above the tenths column?

Answers will vary. Example answer: It represents regrouping because 0.04 + 0.09 is 1 tenth and 3 hundredths.

Subtraction

1. Estimate the difference of 0.8 and 0.12: _____

2. Represent 0.8 – 0.12 on the grid. Use a different-colored marker, crayon, or pencil for each decimal number.



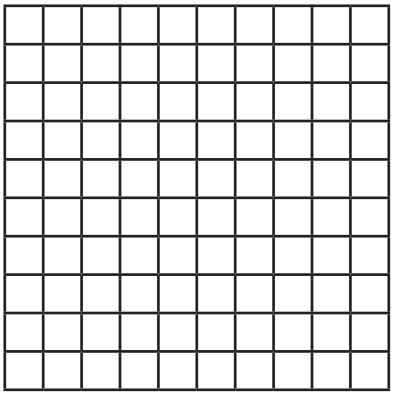
3. 0.8 – 0.12 = _____

4. Write the previous equation vertically and show how you would solve the problem without a model.

Subtraction

1. Estimate the difference of 0.8 and 0.12: Accept a range of 0.0 to 0.75, depending on whether students use benchmark decimals or truncation (delete digits to the right of decimal point) to estimate.

2. Represent 0.8 – 0.12 on the grid. Use a different-colored marker, crayon, or pencil for each decimal number.



Answers will vary. Students should represent 0.8 and then show 0.12 marked off.

3. 0.8 – 0.12 = 0.68

4. Write the previous equation vertically and show how you would solve the problem without a model.

$$\begin{array}{r} 0.80 \\ -\ 0.12 \\ \hline 0.68 \end{array}$$

5. Seaton subtracted 8.1 – 3.02. Her difference was 4.9. Do you agree with her answer?

a. Yes, I agree because you have to regroup with the 1 tenth to subtract 2 tenths.

b. Yes, I agree because that is close to the estimate of 5.

c. No, I disagree because the difference is 5.12.

d. No, I disagree because she did not subtract the correct place value positions. The difference is 5.08.

5. Seaton subtracted 8.1 − 3.02. Her difference was 4.9. Do you agree with her answer?

a. Yes, I agree because you have to regroup with the 1 tenth to subtract 2 tenths.

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c. No, I disagree because the difference is 5.12.

d. No, I disagree because she did not subtract the correct place value positions. The difference is 5.08.

Trying It on Your Own

1. When Bryn added 3.16 and 4, she got a sum of 3.56. Is Bryn correct?

a. This answer is correct because 4 + 1 = 5

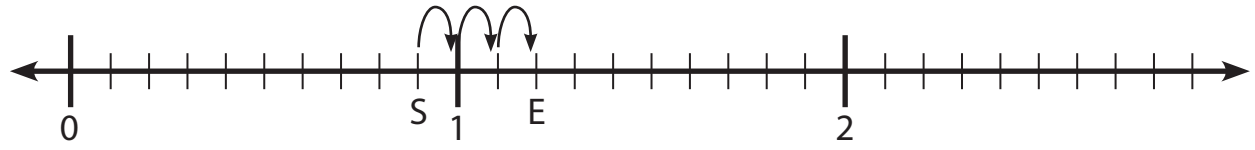
b. This answer is correct because the 1 is in the ones place and the 4 is also in the ones place, so we add those 2 digits together.

c. This answer is incorrect because the 4 should be placed under the 6 and the answer will be 3.2.

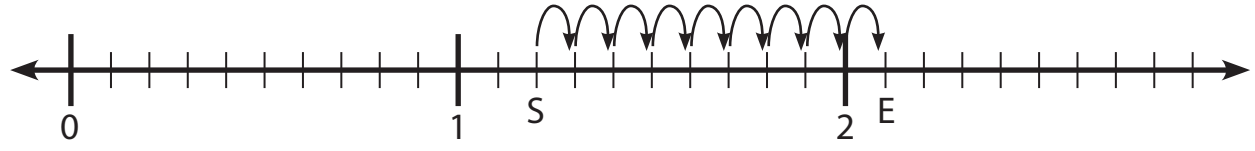
d. This answer is incorrect because the 4 is in the ones place and the 3 is in the ones place so you add 4 and 3. The answer will be 7.16.

2. Which number line represents the equation 1.2 + 0.9 = 2.1?

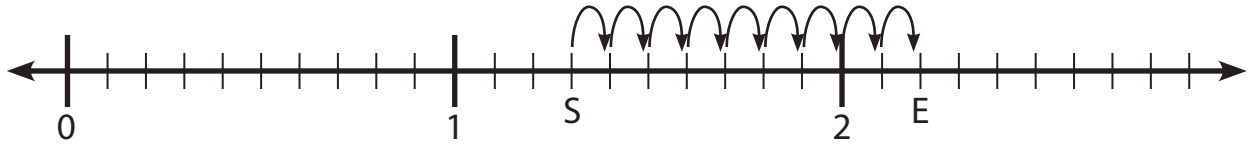
a.



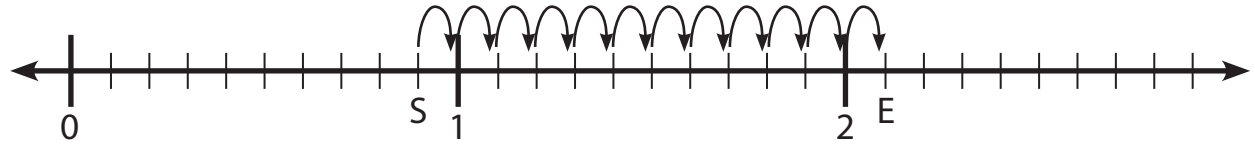
b.



c.



d.



Trying It on Your Own

1. When Bryn added 3.16 and 4, she got a sum of 3.56. Is Bryn correct?

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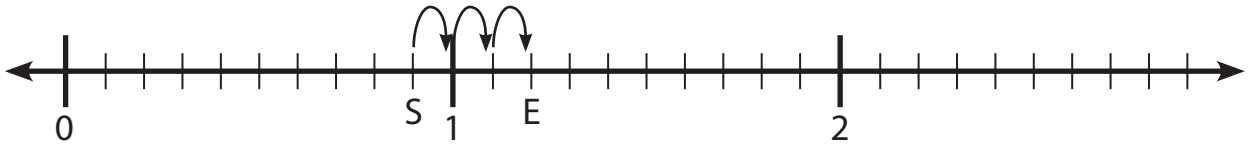
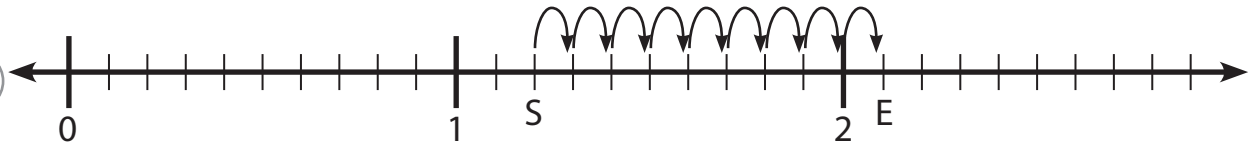
2. Which number line represents the equation 1.2 + 0.9 = 2.1?

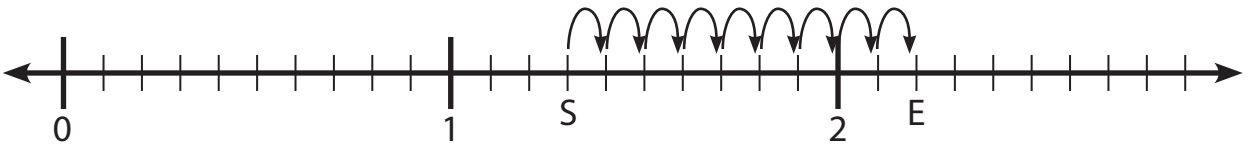
a.



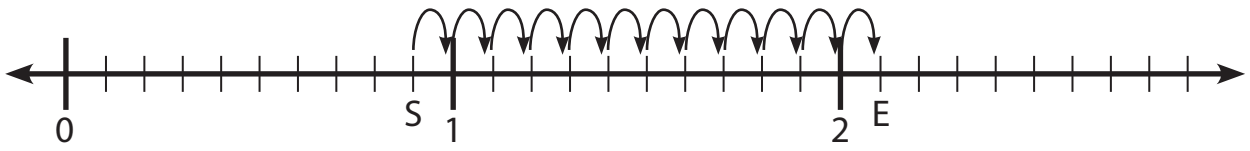
b.



c.



d.



3. 3.456 – 0.203 =

a. 3.253

b. 3.226

c. 1.426

d. 1.156

4. Which answer provides the most reasonable estimate for 4.876 + 0.3 + 10.11?

a. 15

b. 17

c. 18

d. 13

3. 3.456 – 0.203 =

a. 3.253

b. 3.226

c. 1.426

d. 1.156

4. Which answer provides the most reasonable estimate for 4.876 + 0.3 + 10.11?

a. 15

b. 17

c. 18

d. 13

Wrapping It Up

Find 2 decimal numbers whose sum OR difference is 4.18.

Wrapping It Up

Find 2 decimal numbers whose sum OR difference is 4.18.

Answers will vary, such as 2.1 + 2.08 or 5.0 – 0.82.

Warming Up:

Estimate a whole-number product for each expression.

1. 8×19 Estimate: _____

2. 2.6×3 Estimate: _____

3. 5.7×4.2 Estimate: _____

4. 12.011×3.09 Estimate: _____

Warming Up:

Estimate a whole-number product for each expression.

1. 8×19 Estimate: 160 to 200

Answers may vary, such as 10 and 20

2. 2.6×3 Estimate: 2.6 to 2.9

3. 5.7×4.2 Estimate: 24

4. 12.011×3.09 Estimate: 36

Learning to Solve:

Each of Cynthia's 4 rose bushes needs a space 0.45 feet wide to be shipped without harming it. How wide does the packing box need to be to fit all 4 bushes?

A. Estimate the solution.

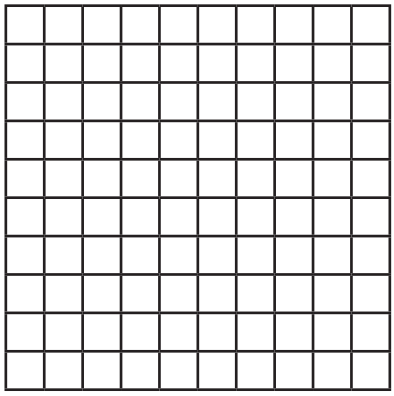
B. Represent this situation, using grid(s).

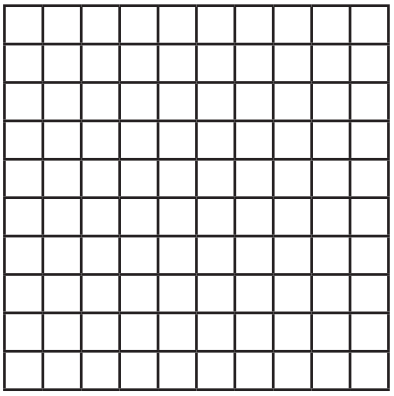
C. Write an equation to represent the situation.

D. Show how to solve the equation without using a model.

1. Estimate: _____

2. Grid representation:





3. Equation that represents this model: _____

4. Solve the problem without a model:

Learning to Solve:

Each of Cynthia's 4 rose bushes needs a space 0.45 feet wide to be shipped without harming it. How wide does the packing box need to be to fit all 4 bushes?

A. Estimate the solution.

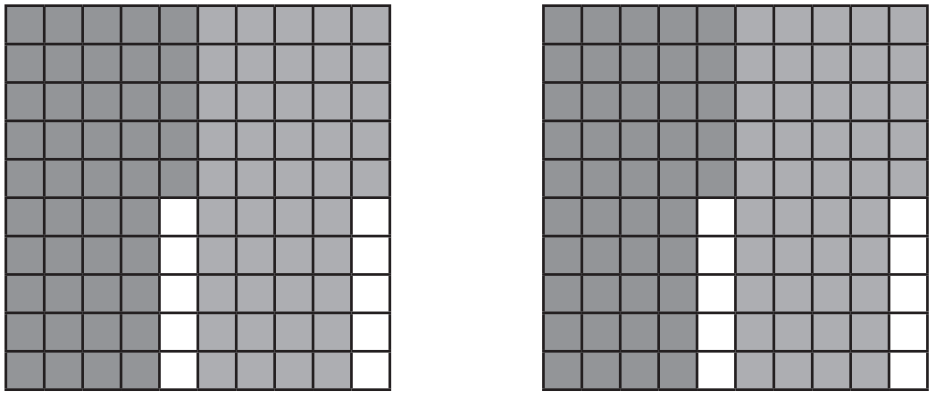
B. Represent this situation, using grid(s).

C. Write an equation to represent the situation.

D. Show how to solve the equation without using a model.

1. Estimate: 2 feet

2. Grid representation:



3. Equation that represents this model: $4 \times 0.45 = 1.8$ or $0.45 \times 4 = 1.8$

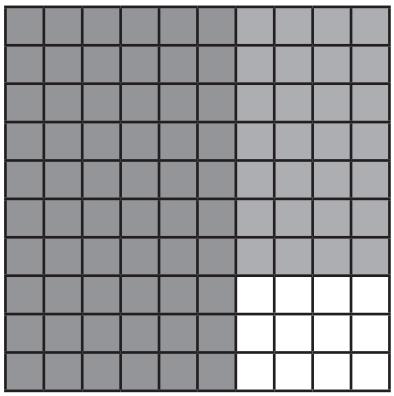
4. Solve the problem without a model:

$$\begin{array}{r} 0.45 \\ \times \quad 4 \\ \hline 1.80 \end{array}$$

0.6×0.7

1. Estimate: _____

2. Grid representation:



3. Equation that represents this model: _____

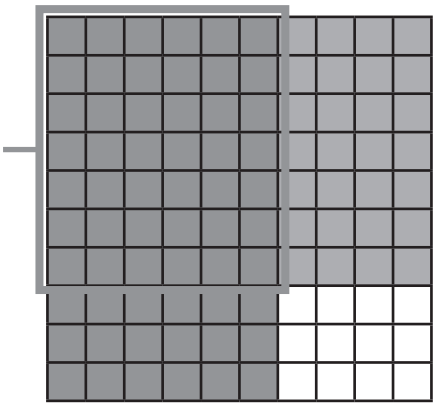
4. Solve the problem without a model:

0.6×0.7

1. Estimate: less than 1 group of 0.6

2. Grid representation:

0.7 groups of 0.6
or
0.6×0.7



3. Equation that represents this model: $0.6 \times 0.7 = 0.42$ or $0.7 \times 0.6 = 0.42$

4. Solve the problem without a model:

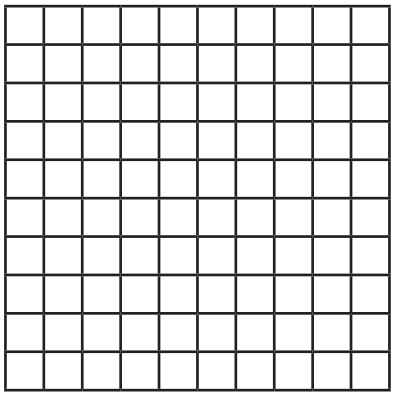
$$\begin{array}{r} 0.6 \\ \times\ 0.7 \\ \hline 0.42 \end{array}$$

Practicing Together:

Kristopher ran 0.6 miles a day for 9 days. What is the total number of miles he ran?

1. Estimate the solution: _____

2. Represent this situation on the grid.



3. Write an equation to represent the situation: _____

4. Show how to solve the equation without using a model.

Circle the correct estimate choice. Then find the product of each problem.

0.51 Estimate: Greater than 0.5 or less than 0.5
× 0.5

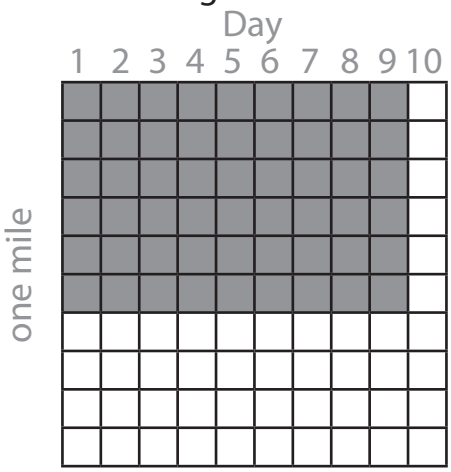
2.034 Estimate: Greater than 1.0 or less than 1.0
× 0.22

Practicing Together:

Kristopher ran 0.6 miles a day for 9 days. What is the total number of miles he ran?

1. Estimate the solution: 5

2. Represent this situation on the grid.



3. Write an equation to represent the situation: $0.6 \times 9 = 5.4$ or $9 \times 0.6 = 5.4$

4. Show how to solve the equation without using a model.

$$\begin{array}{r} 0.6 \\ \times\ 9 \\ \hline 5.4 \end{array}$$

Circle the correct estimate choice. Then find the product of each problem.

$$\begin{array}{r} 0.51 \\ \times\ 0.5 \\ \hline 0.255 \end{array}$$

Estimate: Greater than 0.5 or (less than 0.5)

$$\begin{array}{r} 2.034 \\ \times\ 0.22 \\ \hline 0.44748 \end{array}$$

Estimate: Greater than 1.0 or (less than 1.0)

Trying It on Your Own

1. Maria calculated 1.4×0.5 and said the answer is 7.0. Is she correct?

a. Yes, because 0.5 is the same as $\frac{1}{2}$ and $\frac{1}{2}$ of 14 is 7.

b. Yes, because 0.5 is the same as $\frac{1}{2}$ and $\frac{1}{2}$ of 1.4 is 7.0.

c. No, because 0.5 is the same as $\frac{1}{2}$ and $\frac{1}{2}$ of 1.4 is 0.7.

d. No, because $1.4 \times 0.5 = 0.6$.

2. Which expression will result in a product of 0.046?

a. 0.23×0.2

b. 2.3×0.2

c. 0.23×2.0

d. 2.3×2.0

Trying It on Your Own

1. Maria calculated 1.4×0.5 and said the answer is 7.0. Is she correct?

a. Yes, because 0.5 is the same as $\frac{1}{2}$ and $\frac{1}{2}$ of 14 is 7.

b. Yes, because 0.5 is the same as $\frac{1}{2}$ and $\frac{1}{2}$ of 1.4 is 7.0.

c. No, because 0.5 is the same as $\frac{1}{2}$ and $\frac{1}{2}$ of 1.4 is 0.7.

d. No, because $1.4 \times 0.5 = 0.6$.

2. Which expression will result in a product of 0.046?

a. 0.23×0.2

b. 2.3×0.2

c. 0.23×2.0

d. 2.3×2.0

3. 0.9×0.3

a. The product is greater than 1.

b. The product is less than 0.1.

c. The product is greater than 0.5.

d. The product is less than 0.5.

4. I planted a bush that grew 2.3 feet each year. How tall was the tree after 4 years?

a. 9.2 feet

b. 8.2 feet

c. 92 feet

d. 8.12 feet

3. 0.9×0.3

a. The product is greater than 1.

b. The product is less than 0.1.

c. The product is greater than 0.5.

d. The product is less than 0.5.

4. I planted a bush that grew 2.3 feet each year. How tall was the tree after 4 years?

a. 9.2 feet

b. 8.2 feet

c. 92 feet

d. 8.12 feet

Wrapping It Up

1. The product of 0.1 and 0.3 is 3 tenths.

True False

2. The product of 1.8 and 4.0 is 7 and 2 tenths.

True False

3. The product of 2.33 and 0.2 is 466 thousandths.

True False

Wrapping It Up

1. The product of 0.1 and 0.3 is 3 tenths.

True (False)

2. The product of 1.8 and 4.0 is 7 and 2 tenths.

(True) False

3. The product of 2.33 and 0.2 is 466 thousandths.

(True) False

Warming Up:

Find a Place Decimal Game Directions

1. You will play in pairs. The person on the left is Player A. The person on the right is Player B.

2. The goal of the game is to create a decimal number, using the digits 0 through 9, that is as close as possible to the target decimal number in the center of the page: 0, 1, 5, 10.

3. To create the decimal numbers, the teacher will draw a card from this deck and show it to you. The deck contains the 2 through 9 cards. The 10 card represents 0 and the ace represents 1. There are 4 of each number in the deck.

4. The first card I draw will be for Player A. Player A may put the number on the card in any place value position that is blank on his/her side of the game sheet. Once the card is drawn, it will not be drawn again.

5. Player B will get the next card. That player will place the number in any place value position that is blank on his/her side of the game sheet.

6. The teacher will keep drawing cards until all of the blanks are filled.

7. Once you place a number in a box, you may not change the number or move it.

8. You must play the number on your turn. In other words, you cannot save the number and play it later.

Scoring Directions

1. To score, you and your partner will subtract the target number and the number you created and place the score in the box next to the target number on your side of the game sheet. The difference will always be positive, so you should subtract the smaller number from the larger number.

2. After you find all the differences, add them. That will give you your total score.

3. The person with the least number of points wins.

Learning to Solve:

1. Charles drove 342 miles in 5.7 hours. What was the average miles per hour?

Estimate:

Answer:

2. A length of the fence is 149.6 feet. Every 6.8 feet, a post needs to be placed in concrete to keep the fence upright. In how many places will concrete need to be poured?

Estimate:

Answer:

3. An unsliced loaf of bread is 1.26 feet long. If it is cut into pieces that are 0.14 feet in length, how many pieces will there be?

Estimate:

Answer:

4. The cross-country running team runs an average of 8.5 miles each day. How many days did it take them to run 119 miles?

Estimate:

Answer:

Learning to Solve:

1. Charles drove 342 miles in 5.7 hours. What was the average miles per hour?

Estimate: 60–70 miles per hour

Answer: 60 miles per hour

2. A length of the fence is 149.6 feet. Every 6.8 feet, a post needs to be placed in concrete to keep the fence upright. In how many places will concrete need to be poured?

Estimate: 20–30 places

Answer: 22 places

3. An unsliced loaf of bread is 1.26 feet long. If it is cut into pieces that are 0.14 feet in length, how many pieces will there be?

Estimate: 0–13 pieces

Answer: 9 pieces

4. The cross-country running team runs an average of 8.5 miles each day. How many days did it take them to run 119 miles?

Estimate: 12–20 days

Answer: 14 days

Trying It on Your Own

1. The expression 14 ÷ 0.7 results in a quotient that is smaller than 14.

a. True: Division always results in a smaller number.

b. True: The answer is 7.

c. True: The answer is 2.

d. False: The quotient is greater than 14.

2. Which of the following is the closest whole-number estimate for 8.75 ÷ 0.8?

a. 10

b. 5

c. 4

d. 1

Trying It on Your Own

1. The expression 14 ÷ 0.7 results in a quotient that is smaller than 14.

a. True: Division always results in a smaller number.

b. True: The answer is 7.

c. True: The answer is 2.

d. False: The quotient is greater than 14.

2. Which of the following is the closest whole-number estimate for 8.75 ÷ 0.8?

a. 10

b. 5

c. 4

d. 1

3. Which of the following expressions results in a quotient of 1.2?

a. 0.72 ÷ 0.6

b. 7.2 ÷ 0.6

c. 0.72 ÷ 6

d. 7.2 ÷ 0.06

4. Pauline said that 1.64 ÷ 4.1 is 4. Is she correct?

a. Yes, because 4.1 × 4 is 1.64.

b. No, the answer is 0.4.

c. Yes, because when you divide a smaller number by a bigger number, the quotient is smaller.

d. No, there should be 2 decimal places in the answer because there are 2 decimal places in the dividend.

3. Which of the following expressions results in a quotient of 1.2?

a. 0.72 ÷ 0.6

b. 7.2 ÷ 0.6

c. 0.72 ÷ 6

d. 7.2 ÷ 0.06

4. Pauline said that 1.64 ÷ 4.1 is 4. Is she correct?

a. Yes, because 4.1 × 4 is 1.64.

b. No, the answer is 0.4.

c. Yes, because when you divide a smaller number by a bigger number, the quotient is smaller.

d. No, there should be 2 decimal places in the answer because there are 2 decimal places in the dividend.

Wrapping It Up

On an index card, write a story problem involving division with a quotient that is greater than the dividend and the divisor. Show the solution to the problem.

Wrapping It Up

On an index card, write a story problem involving division with a quotient that is greater than the dividend and the divisor. Show the solution to the problem.

Answers may vary, but the quotient should be greater than the dividend and the divisor.

Masters for Game and Activity Cards

Decimals

The Meadows Center for Preventing Educational Risk—Mathematics Institute
The University of Texas at Austin

Decimal and Fraction Cards for Lesson 1

0.2	$\frac{20}{100}$	0.03	$\frac{3}{100}$
1.1	$\frac{110}{100}$	0.1	$\frac{10}{100}$
0.4	$\frac{40}{100}$	0.5	$\frac{50}{100}$
1.01	$\frac{101}{100}$	0.3	$\frac{30}{100}$
0.04	$\frac{4}{100}$	0.05	$\frac{5}{100}$
0.01	$\frac{1}{100}$	0.02	$\frac{2}{100}$

Decimal and Fraction Cards for Lesson 3

0.8	0.12	0.236	0.4	0.36	0.509
0.7	$\frac{2}{5}$	0.284	$\frac{1}{2}$	0.16	0.181
0.1	0.02	0.008	0.6	$\frac{1}{3}$	0.210
0.3	0.090	0.77	0.9	$\frac{1}{4}$	0.501
0.24	0.309	0.17	0.611	0.18	0.08

10 by 10 Grid for Lesson 4

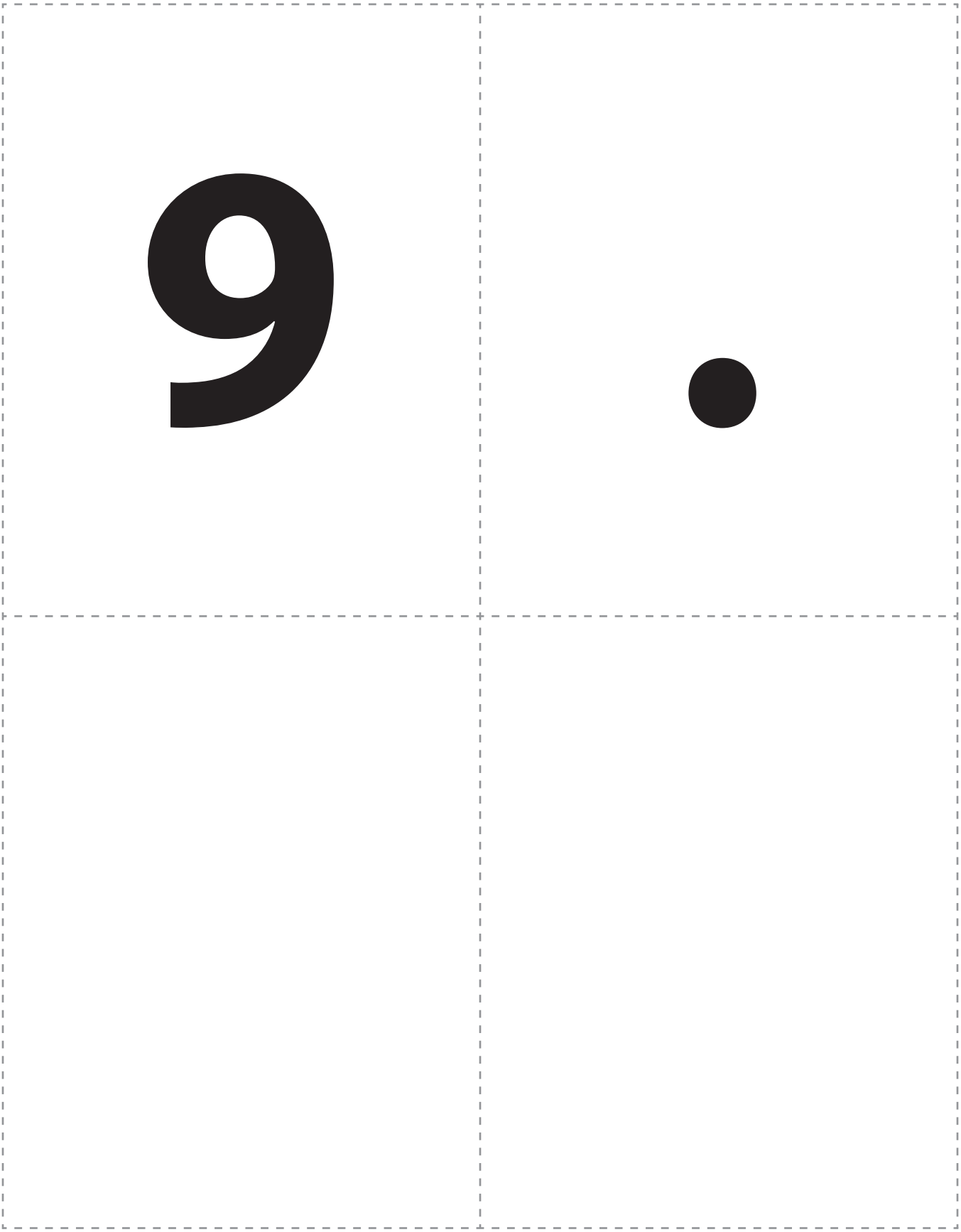
Cards of Decimals for Lesson 4

0.3	0.45	0.09
0.68	0.37	0.29
0.001	1.03	0.91

Decimal Cards for Lesson 8

1	2
3	4

5	6
7	8


9
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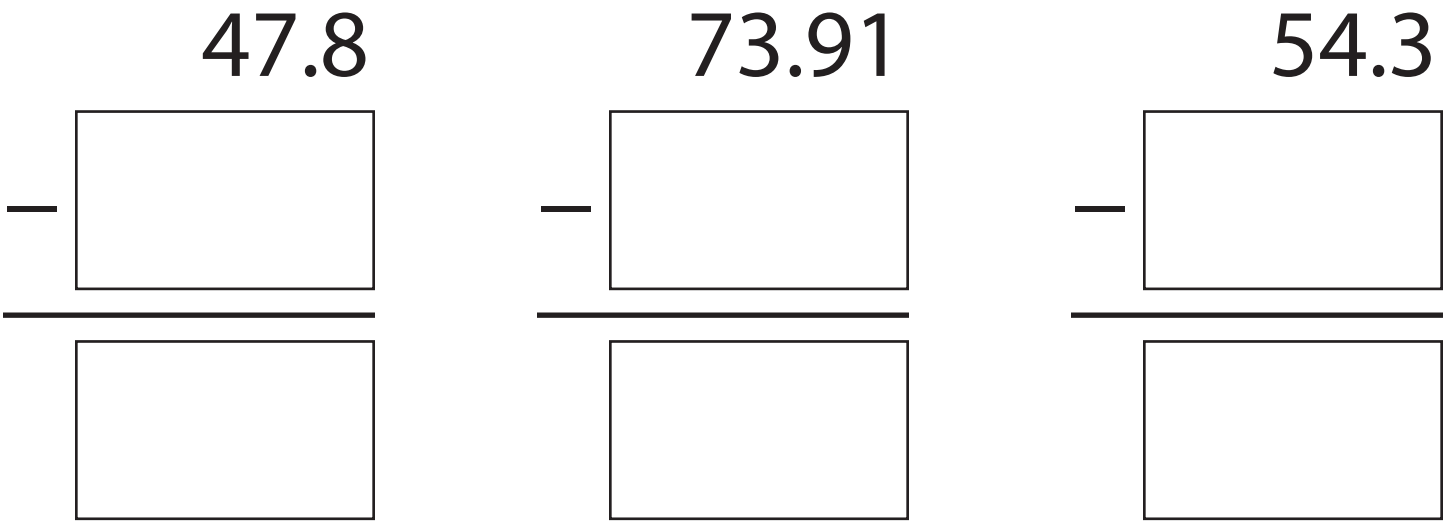
Match It Up! Game Cards for Lesson 9

26.2	23.25	21.6	26.13
28.17	38.42	12.55	35.49

Match It Up! Game Sheet for Lesson 9

Match your cards to make a correct subtraction problem.



Make Mine 1 Score Sheets for Lesson 10

Player 1 Make Mine 1 Score Sheet

Addition Equation	Score
0.___ ___ + 0.___ ___ = _____	_____
0.___ ___ + 0.___ ___ = _____	_____
0.___ ___ + 0.___ ___ = _____	_____
0.___ ___ + 0.___ ___ = _____	_____
0.___ ___ + 0.___ ___ = _____	_____
0.___ ___ + 0.___ ___ = _____	_____

Total Score: _____

Player 2 Make Mine 1 Score Sheet

Addition Equation	Score
0.___ ___ + 0.___ ___ = _____	_____
0.___ ___ + 0.___ ___ = _____	_____
0.___ ___ + 0.___ ___ = _____	_____
0.___ ___ + 0.___ ___ = _____	_____
0.___ ___ + 0.___ ___ = _____	_____
0.___ ___ + 0.___ ___ = _____	_____

Total Score: _____

Blank Estimating Sorting Cards for Lesson 11

Estimating Sorting Cards for Lesson 11

87.62 − 62.38	**31.6 × 0.31**	**74.9 − 26.001**
14.3 × 3.5	**21.96 × 2.3**	**47.73 − 32.9**
3.25 + 8.12	**16.887 + 35.001**	**14.85 + 7.15**
96.76 × 0.28		

Estimating Sorting Sheet for Lesson 11

About 10	About 25	About 50

Multiplication Mania Game Sheet for Lesson 12

Multiplication Mania Game Sheet

	Close to	Score
___ . ___ × ___ . ___ = _____	10	_____
___ . ___ × ___ . ___ = _____	25	_____
___ ___ . ___ × ___ . ___ = _____	50	_____

Total Score: _____

Multiplication Mania Game Sheet

	Close to	Score
___ . ___ × ___ . ___ = _____	10	_____
___ . ___ × ___ . ___ = _____	25	_____
___ ___ . ___ × ___ . ___ = _____	50	_____

Total Score: _____

Decimal Cards for Lesson 13

3.02 ÷ 2.3	**5.76 ÷ 0.33**	**16.1 ÷ 16.10**
7.88 ÷ 9.3	**18 ÷ 3.2**	**5.255 ÷ 0.33**
109.8 ÷ 0.475	**4.001 ÷ 0.9998**	**324.32 ÷ 24.78789**

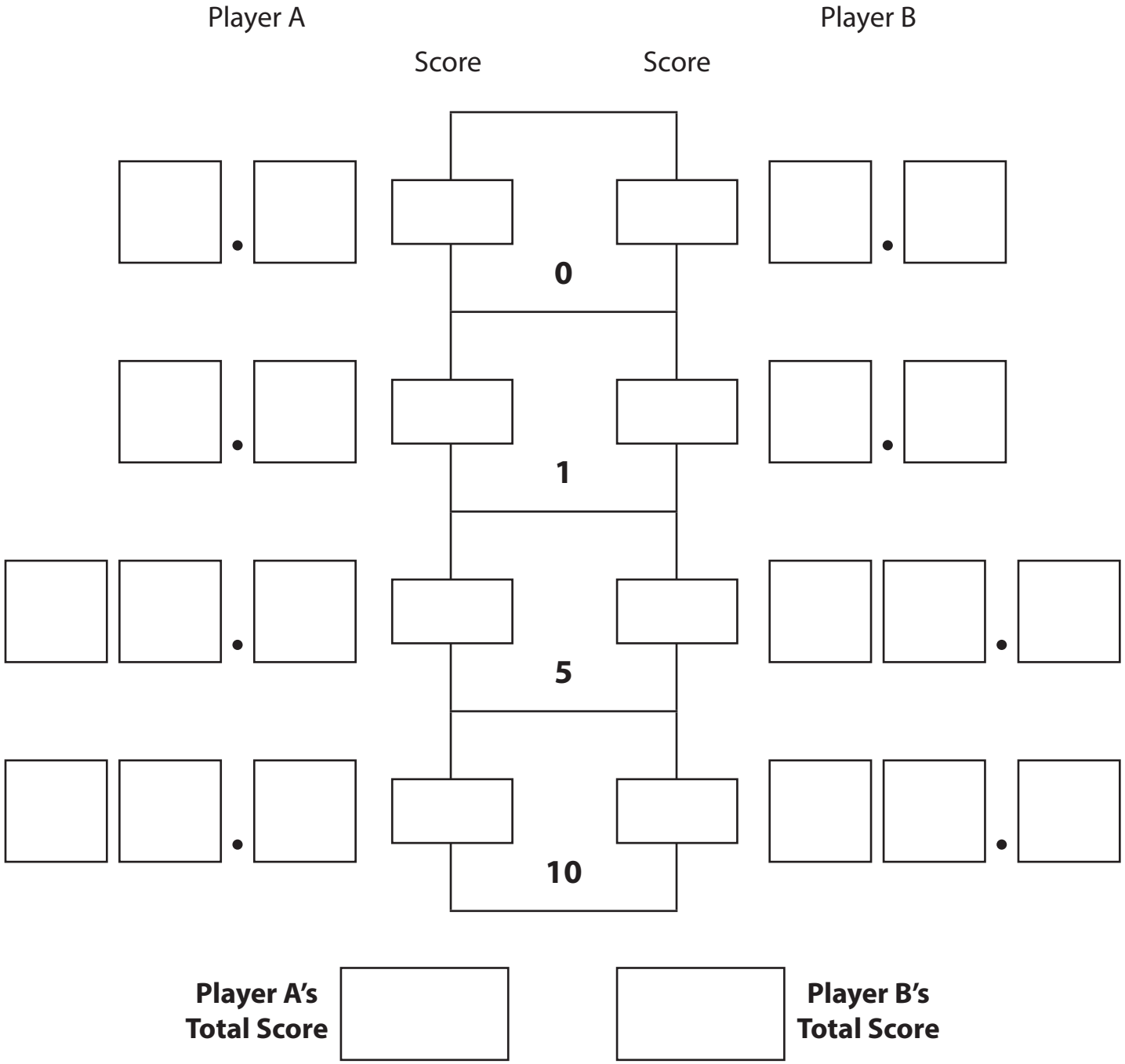
Less Than the Dividend/More Than the Dividend Sheet for Lesson 13

Less Than the Dividend	More Than the Dividend

Find A Place for Lessons 14, 14A, 15

(2 Players)

Use 40 cards numbered 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 *(four or each)*



Dougherty, B. J. (2005). *Find a place decimals*. Honolulu, HI: Curriculum Research & Development Group, University of Hawai'i.

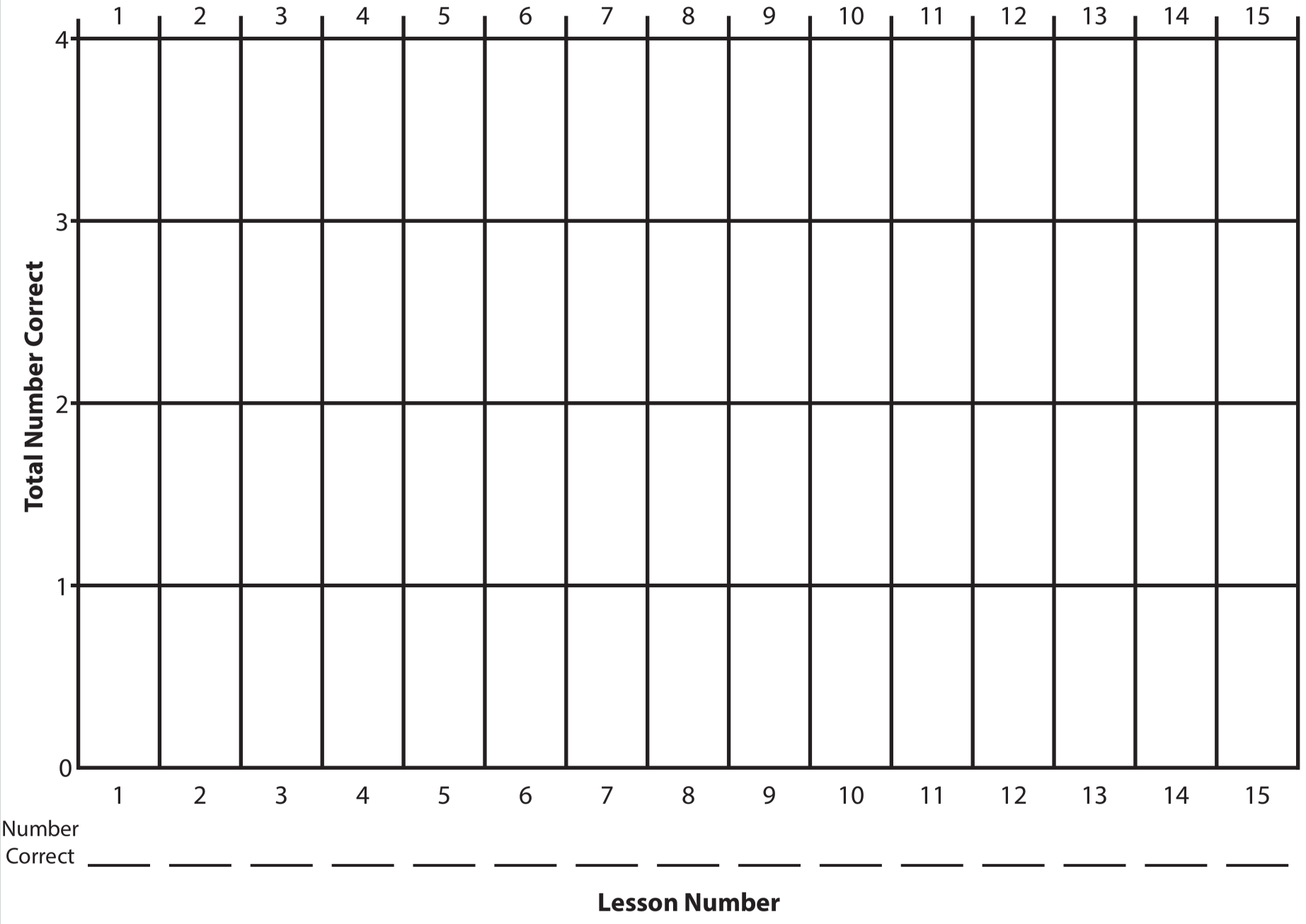
Notes

Decimals

Example											
Picture											
Generalizations											

Name _____

Graph Your Progress



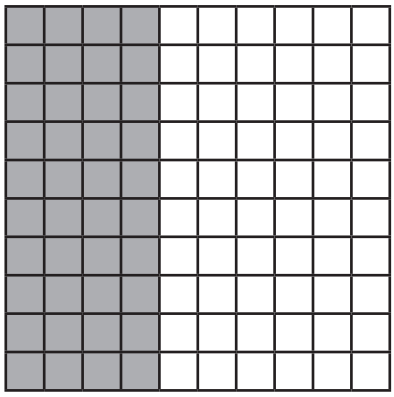
Decimals

Extra Practice

The Meadows Center for Preventing Educational Risk—Mathematics Institute
The University of Texas at Austin

Additional Practice

1.



Which of the following describes the shaded area of the grid?

a. $\frac{4}{6}$

b. 0.06

c. 0.6

d. 0.4

2. Which of the following is the decimal fraction for 0.49?

a. $\frac{49}{10}$

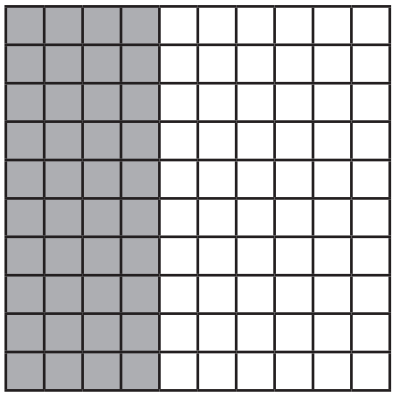
b. $\frac{49}{100}$

c. $\frac{49}{1}$

d. $\frac{100}{49}$

Additional Practice

1.



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2. Which of the following is the decimal fraction for 0.49?

a. $\frac{49}{10}$

b. $\frac{49}{100}$

c. $\frac{49}{1}$

d. $\frac{100}{49}$

3. Julie said, "The 2 in 478.2 represents 20, or 2 tens." Do you agree with Julie?

a. Agree, because each place value in a number is 10 times larger than the place value of the digit to its right.

b. Agree, because it could be written as 478.20.

c. Disagree, because the 2 represents 2 tenths.

d. Disagree, because the 2 represents 2 ones.

4. Which of the following is equivalent to 0.4?

a. 0.04

b. 0.40

c. 4.0

d. 40.0

3. Julie said, "The 2 in 478.2 represents 20, or 2 tens." Do you agree with Julie?

a. Agree, because each place value in a number is 10 times larger than the place value of the digit to its right.

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c. Disagree, because the 2 represents 2 tenths.

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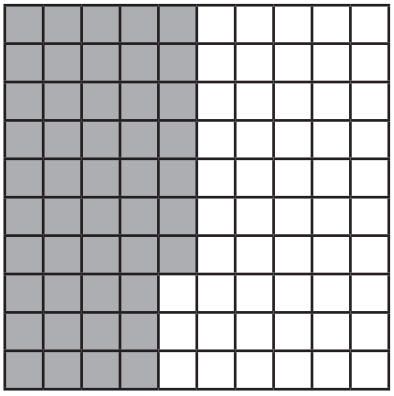
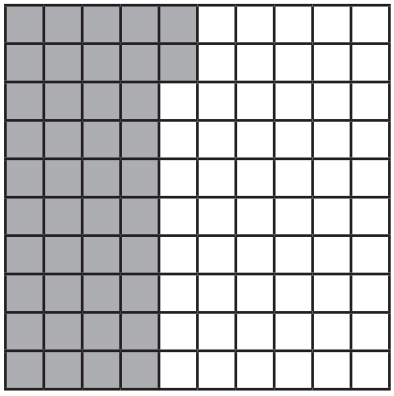
Additional Practice

1. Which statement is true?



Daniel's model of 0.47



Chris's model of 0.42

a. You can't tell which decimal is greater.
b. $0.47 = 0.42$
c. $0.47 < 0.42$
d. $0.47 > 0.42$

2. Which of the following is a correct statement?

a. $\frac{1}{4} > 0.25$

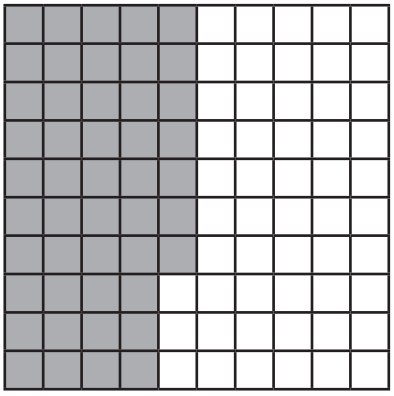
b. $0.252 > \frac{1}{4}$

c. $\frac{1}{4} > 0.255$

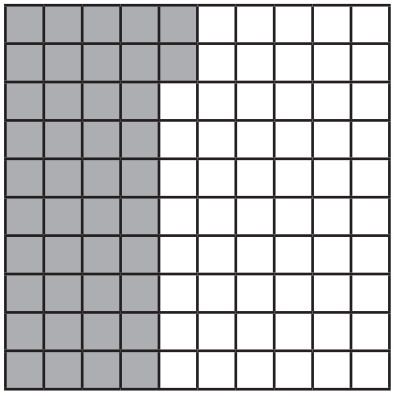
d. $0.24 > \frac{1}{4}$

Additional Practice

1. Which statement is true?



Daniel's model of 0.47



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b. $0.252 > \frac{1}{4}$

c. $\frac{1}{4} > 0.255$

d. $0.24 > \frac{1}{4}$

3. David said that $0.521 < 0.52$. Do you agree with him?

a. No, because 521 is not less than 52.

b. Yes, because if there are more digits in the decimal, it will be smaller.

c. No, because 521 thousandths is greater than 520 thousandths.

d. Yes, the last digit of 0.521 is 1 and the last digit of 0.52 is 2.

4. Which statement describes the relationship between 0.427 and 0.368?

a. The 7 in 0.427 is less than the 8 in 0.368, so $0.427 < 0.368$.

b. $0.4 > 0.3$; therefore, $0.427 > 0.368$.

c. There are 3 digits in each decimal, so $0.427 = 0.368$.

d. 68 is greater than 27, so $0.427 < 0.368$.

3. David said that 0.521 < 0.52. Do you agree with him?

a. No, because 521 is not less than 52.

b. Yes, because if there are more digits in the decimal, it will be smaller.

c. No, because 521 thousandths is greater than 520 thousandths.

d. Yes, the last digit of 0.521 is 1 and the last digit of 0.52 is 2.

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b. 0.4 > 0.3; therefore, 0.427 > 0.368.

c. There are 3 digits in each decimal, so 0.427 = 0.368.

d. 68 is greater than 27, so 0.427 < 0.368.

Additional Practice

1. Which of the following shows a correct relationship?

a. $0.31 < 0.278$

b. $0.582 < 0.528$

c. $0.475 < 0.423$

d. $0.73 = 0.730$

2. Which is the correct descending, or greatest to least, order of this set of decimals?

$$\frac{1}{3},\ 0.335, 0.3, 0.033,\ \frac{1}{4},\ 0.4$$

a. $\frac{1}{4}, 0.4, \frac{1}{3}, 0.335, 0.3, 0.033$

b. $0.4, 0.335, \frac{1}{3}, 0.3, \frac{1}{4}, 0.033$

c. $\frac{1}{4}, \frac{1}{3}, 0.335, 0.3, 0.033, 0.4$

d. $\frac{1}{4}, 0.3, \frac{1}{3}, 0.4, 0.033, 0.335$

Additional Practice

1. Which of the following shows a correct relationship?

a. $0.31 < 0.278$

b. $0.582 < 0.528$

c. $0.475 < 0.423$

d. $0.73 = 0.730$

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$$\frac{1}{3},\ 0.335, 0.3, 0.033,\ \frac{1}{4},\ 0.4$$

a. $\frac{1}{4}, 0.4, \frac{1}{3}, 0.335, 0.3, 0.033$

b. $0.4, 0.335, \frac{1}{3}, 0.3, \frac{1}{4}, 0.033$

c. $\frac{1}{4}, \frac{1}{3}, 0.335, 0.3, 0.033, 0.4$

d. $\frac{1}{4}, 0.3, \frac{1}{3}, 0.4, 0.033, 0.335$

3. Put these rational numbers in order from least to greatest, or ascending order:

0.003, 0.045, 0.0045, 4.0405, 4.045, 0.0313

a. 0.003, 0.045, 0.0045, 4.0405, 4.045, 0.0313
b. 0.003, 0.045, 0.0045, 0.0313, 4.045, 4.0405
c. 0.003, 0.0045, 0.0313, 0.045, 4.0405, 4.045
d. 4.045, 4.0405, 0.045, 0.0313, 0.0045, 0.003

4. Tiffany said that these rational numbers are in order from least to greatest, or ascending order:

$$0.0025, 0.025, 0.05, \frac{1}{4}, 0.4859, \frac{1}{2}, 0.505, 1.004, 2.5$$

Is she correct?

a. Yes, because $\frac{1}{4}$ is like 40 and $\frac{1}{2}$ is like 50, and then you can put them in this order: 5, 25, 40, 250, 2500, 4859, 50, 505, 1004.

b. Yes, because she knows that $\frac{1}{4} = 0.25$ and $\frac{1}{2} = 0.5$. She put the decimals in order from least to greatest: 0.0025, 0.025, 0.05, 0.25, 0.4859, 0.5, 0.505, 1.004, 2.5.

c. No, because $\frac{1}{2}$ is the largest number in the list, so it should go first.

d. No, because $\frac{1}{4}$ is equal to 0.4, which is greater than 0.4859.

3. Put these rational numbers in order from least to greatest, or ascending order:

0.003, 0.045, 0.0045, 4.0405, 4.045, 0.0313

a. 0.003, 0.045, 0.0045, 4.0405, 4.045, 0.0313
b. 0.003, 0.045, 0.0045, 0.0313, 4.045, 4.0405
c. 0.003, 0.0045, 0.0313, 0.045, 4.0405, 4.045
d. 4.045, 4.0405, 0.045, 0.0313, 0.0045, 0.003

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Is she correct?

a. Yes, because $\frac{1}{4}$ is like 40 and $\frac{1}{2}$ is like 50, and then you can put them in this order: 5, 25, 40, 250, 2500, 4859, 50, 505, 1004.

b. Yes, because she knows that $\frac{1}{4} = 0.25$ and $\frac{1}{2} = 0.5$. She put the decimals in order from least to greatest: 0.0025, 0.025, 0.05, 0.25, 0.4859, 0.5, 0.505, 1.004, 2.5.

c. No, because $\frac{1}{2}$ is the largest number in the list, so it should go first.

d. No, because $\frac{1}{4}$ is equal to 0.4, which is greater than 0.4859.

Additional Practice

1. Martin said, "0.203 is closer to 200 than the benchmark decimals." Do you agree with Martin?

a. Agree, because 203 is close to 200.

b. Agree, because they both have 2 in the hundreds place and a 0 in the tenths place.

c. Disagree, because 0.203 is less than 1 but more than 0.25.

d. Disagree, because 0.203 is less than 1, but close to 0.25.

2. Janna ordered these 3 decimals from least to greatest, using benchmark decimals.

0.68 0.316 0.1178

Do you agree with his order?

a. Disagree, because 0.1178 is closer to 0 and 0.68 is closer to 0.5.

b. Agree, because 0.68 is closer to 0.5, 0.316 is closer to 0.75, and 0.1178 is closer to 1.

c. You cannot order decimals that do not have the same number of digits to the right of the decimal point.

d. Agree, because 0.316 is larger than 0.68.

Additional Practice

1. Martin said, "0.203 is closer to 200 than the benchmark decimals." Do you agree with Martin?

a. Agree, because 203 is close to 200.

b. Agree, because they both have 2 in the hundreds place and a 0 in the tenths place.

c. Disagree, because 0.203 is less than 1 but more than 0.25.

d. Disagree, because 0.203 is less than 1, but close to 0.25.

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0.68 0.316 0.1178

Do you agree with his order?

a. Disagree, because 0.1178 is closer to 0 and 0.68 is closer to 0.5.

b. Agree, because 0.68 is closer to 0.5, 0.316 is closer to 0.75, and 0.1178 is closer to 1.

c. You cannot order decimals that do not have the same number of digits to the right of the decimal point.

d. Agree, because 0.316 is larger than 0.68.

3. Which of the following is a true statement?

a. 0.37 = 0.63 because they are the same distance from 0.5.

b. 0.37 < 0.63 because 6 tenths is larger than 3 tenths.

c. 0.37 > 0.63 because 0.63 is farther to the right on the number line.

d. 0.37 > 0.63 because 0.63 is only 0.13 away from 0.5 but 0.37 is 0.14 away from 0.5.

4. Select the correct order of these decimals from greatest to least:

0.8997 0.8225 0.614 0.216

a.	0.8225	0.614	0.216	0.8997
b.	0.8997	0.8225	0.614	0.216
c.	0.216	0.614	0.8225	0.8997
d.	0.216	0.614	0.8997	0.8225

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b. 0.37 < 0.63 because 6 tenths is larger than 3 tenths.

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d. 0.37 > 0.63 because 0.63 is only 0.13 away from 0.5 but 0.37 is 0.14 away from 0.5.

4. Select the correct order of these decimals from greatest to least:

	0.8997	0.8225	0.614	0.216
a.	0.8225	0.614	0.216	0.8997
b.	0.8997	0.8225	0.614	0.216
c.	0.216	0.614	0.8225	0.8997
d.	0.216	0.614	0.8997	0.8225

Additional Practice

1. Kim added 3.05 + 4.8. Her sum is 3.53. Do you agree? Why or why not?

a. Agree because she lined up the decimal numbers with the digits on the right.

b. Agree because 4.8 is close to 0.5 which makes the answer reasonable.

c. Disagree because you cannot add decimals that have a different number of digits to the right of the decimal point.

d. Disagree because 3.05 is close to 3 and 4.8 is close to 5. The sum should be close to 8.

2. Which of the following has a sum of 14.72?

a. 0.47 + 10.02

b. 8.12 + 6.06

c. 9.24 + 5.48

d. 11.02 + 0.37

Additional Practice

1. Kim added 3.05 + 4.8. Her sum is 3.53. Do you agree? Why or why not?

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2. Which of the following has a sum of 14.72?

a. 0.47 + 10.02

b. 8.12 + 6.06

c. 9.24 + 5.48

d. 11.02 + 0.37

3. Which of the following has a sum close to 25?

a. 12.0007 + 12.00009

b. 10.08 + 0.15

c. 19.01 + 0.6

d. 3.75 + 2.2226

4. What is the sum of 4.006 + 0.0088?

a. 4.0814

b. 4.094

c. 4.0148

d. 4.886

3. Which of the following has a sum close to 25?

a. 12.0007 + 12.00009

b. 10.08 + 0.15

c. 19.01 + 0.6

d. 3.75 + 2.2226

4. What is the sum of 4.006 + 0.0088?

a. 4.0814

b. 4.094

c. 4.0148

d. 4.886

Additional Practice

1. Sara ran 4.2 laps during the relay race. Then, Lucas ran 5 laps. Robert finished the race by running 2.7 laps. What is the total number of laps in the relay race?

a. 7.4 laps

b. 11.9 laps

c. 6.95 laps

d. 6.59 laps

2. Zoe rented a boat. At the end of 2 days, he had used 45.27 gallons of gas. Which expression shows a possible answer for how much gas Zoe used each day?

a. 12.02 + 33.7

b. 30.2 + 15.7

c. 12.25 + 33.02

d. 22.13 + 23.15

Additional Practice

1. Sara ran 4.2 laps during the relay race. Then, Lucas ran 5 laps. Robert finished the race by running 2.7 laps. What is the total number of laps in the relay race?

a. 7.4 laps

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a. 12.02 + 33.7

b. 30.2 + 15.7

c. 12.25 + 33.02

d. 22.13 + 23.15

3. Samantha planted a 2.73-foot pine tree in her yard. After a year, the tree had grown 1.2 feet. Samantha said that her tree is now 3.83 feet tall. Is Samantha correct?

a. No, the tree should be 3.93 feet tall.

b. Yes, because 2.73 + 1.2, 2 + 1 = 3 and then 0.73 + 0.2 = 0.75. The tree should be 3.75 feet tall.

c. Yes, because 2.73 +1.2 = 3.83. The tree should be 3.83 feet tall.

d. No, the tree should be 3.732 feet tall.

4. Mr. Johns drove 7 miles on the first day of the vacation, 3.54 miles on the second day, and 8.2 miles on the third day. How many miles has he been driving?

a. 4.43 miles

b. 18.254 miles

c. 18.74 miles

d. 11.81 miles

3. Samantha planted a 2.73-foot pine tree in her yard. After a year, the tree had grown 1.2 feet. Samantha said that her tree is now 3.83 feet tall. Is Samantha correct?

a. No, the tree should be 3.93 feet tall.

b. Yes, because 2.73 + 1.2, 2 + 1 = 3 and then 0.73 + 0.2 = 0.75. The tree should be 3.75 feet tall.

c. Yes, because 2.73 +1.2 = 3.83. The tree should be 3.83 feet tall.

d. No, the tree should be 3.732 feet tall.

4. Mr. Johns drove 7 miles on the first day of the vacation, 3.54 miles on the second day, and 8.2 miles on the third day. How many miles has he been driving?

a. 4.43 miles

b. 18.254 miles

c. 18.74 miles

d. 11.81 miles

Additional Practice

1. Samantha flew a paper airplane 362.38 feet. Her friend flew a paper airplane 23.5 feet less than that. About how far did her friend fly a paper airplane?

a. 360 feet

b. 338 feet

c. 127 feet

d. 385 feet

2. Which 2 decimal numbers have a difference of about 5?

a. 12.2 – 2.7

b. 30.2 – 15.7

c. 72.25 – 67.02

d. 22.13 – 16.13

Additional Practice

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b. 30.2 – 15.7

c. 72.25 – 67.02

d. 22.13 – 16.13

3. Estimate the difference: 28.05 – 13.8

a. 15

b. 27

c. 29

d. 13

4. Estimate the difference: 48.605 – 23.3

a. 25

b. 23

c. 48

d. 47

3. Estimate the difference: 28.05 – 13.8

a. 15

b. 27

c. 29

d. 13

4. Estimate the difference: 48.605 – 23.3

a. 25

b. 23

c. 48

d. 47

Additional Practice

1. Jack subtracted 4.8 – 3.52. His difference was 4.62. Do you agree? Why or why not?

a. Agree because he lined up the decimal numbers with the digits on the right.

b. Agree because 4.8 is close to 5 which makes the answer reasonable.

c. Disagree because you cannot subtract decimals that have a different number of digits to the right of the decimal point.

d. Disagree because 3.52 is close to 4 and 4.8 is close to 5. The difference should be close to 1.

2. Which of the following has a difference of 10.32?

a. 15.207 – 4.887

b. 16.5 – 6.22

c. 20.075 – 10.043

d. 14.1 – 4.068

Additional Practice

1. Jack subtracted 4.8 – 3.52. His difference was 4.62. Do you agree? Why or why not?

a. Agree because he lined up the decimal numbers with the digits on the right.

b. Agree because 4.8 is close to 5 which makes the answer reasonable.

c. Disagree because you cannot subtract decimals that have a different number of digits to the right of the decimal point.

d. Disagree because 3.52 is close to 4 and 4.8 is close to 5. The difference should be close to 1.

2. Which of the following has a difference of 10.32?

a. 15.207 – 4.887

b. 16.5 – 6.22

c. 20.075 – 10.043

d. 14.1 – 4.068

3. Which of the following has a difference close to 8?

a. 87.58 – 6.73

b. 33.17 – 25.569

c. 19.01 – 1.88

d. 74.305 – 6.201

4. What is the difference of 72.8 – 35.001

a. 37.7

b. 40.79

c. 37.007

d. 37.799

3. Which of the following has a difference close to 8?

a. 87.58 – 6.73

b. 33.17 – 25.569

c. 19.01 – 1.88

d. 74.305 – 6.201

4. What is the difference of 72.8 – 35.001

a. 37.7

b. 40.79

c. 37.007

d. 37.799

Additional Practice

1. David subtracted 74.45 – 30.2 and found a difference of 71.43. Is his answer reasonable?

a. Yes, it is reasonable because he subtracted correctly.

b. Yes, it is reasonable because when you estimate, 74.45 is close to 74 and 30.2 is close to 3. And 74 – 3 = 71.

c. No, it is not reasonable because the answer should be closed to 70.

d. No, it is not reasonable because the answer should be closed to 44.

2. In 2 weeks, Ana walked 15.23 miles, which is 4.2 miles farther than Lisa walked. How far did Lisa walk?

a. 11.03 miles

b. 14.81 miles

c. 19.43 miles

d. 15.65 miles

Additional Practice

1. David subtracted 74.45 – 30.2 and found a difference of 71.43. Is his answer reasonable?

a. Yes, it is reasonable because he subtracted correctly.

b. Yes, it is reasonable because when you estimate, 74.45 is close to 74 and 30.2 is close to 3. And 74 – 3 = 71.

c. No, it is not reasonable because the answer should be closed to 70.

d. No, it is not reasonable because the answer should be closed to 44.

2. In 2 weeks, Ana walked 15.23 miles, which is 4.2 miles farther than Lisa walked. How far did Lisa walk?

a. 11.03 miles

b. 14.81 miles

c. 19.43 miles

d. 15.65 miles

3. Which of the following would complete the equation correctly:

$$\_\_\_\_\_ - 24.3 = 13.27$$

a. 10.76
b. 37.3
c. 37.57
d. 10.84

4. Adam and Bob were both sick. Adam had a temperature of 101.5°. Bob's temperature was 1.5° less. What was Bob's temperature?

a. 101.3°
b. 103°
c. 98.55°
d. 100°

3. Which of the following would complete the equation correctly:

$$\_\_\_\_\_ - 24.3 = 13.27$$

a. 10.76
b. 37.3
c. 37.57
d. 10.84

4. Adam and Bob were both sick. Adam had a temperature of 101.5°. Bob's temperature was 1.5° less. What was Bob's temperature?

a. 101.3°
b. 103°
c. 98.55°
d. 100°

Additional Practice

1. Maggie multiplied 13×4.6. Her product was 598. Which of the following is the best reasoning about Maggie's product?

a. Correct, because 13 is close to 10 and 4.6 is close to 50. $10 \times 50 = 500$.

b. Correct, because 13 is close to 10 and 4.6 is close to 45. $10 \times 45 = 450$.

c. Incorrect, because 13 is close to 10 and 4.6 is close to 5. $10 \times 5 = 50$.

d. Incorrect, because 13 is close to 10 and 4.6 is close to 1. $10 \times 1 = 10$.

2. Which is the best estimate of 0.03×1.25?

a. 0, because 0.03 is close to 0 and 1.25 is close to 10. $0 \times 10 = 0$.

b. 0, because 0.03 is close to 1 and 1.25 is close to 1. $1 \times 1 = 1$.

c. 0, because 0.03 is close to 0 and 1.25 is close to 1. $0 \times 1 = 0$.

d. 0, because 0.03 is close to 1 and 1.25 is close to 10. $1 \times 10 = 10$.

Additional Practice

1. Maggie multiplied 13×4.6. Her product was 598. Which of the following is the best reasoning about Maggie's product?

a. Correct, because 13 is close to 10 and 4.6 is close to 50. $10 \times 50 = 500$.

b. Correct, because 13 is close to 10 and 4.6 is close to 45. $10 \times 45 = 450$.

c. Incorrect, because 13 is close to 10 and 4.6 is close to 5. $10 \times 5 = 50$.

d. Incorrect, because 13 is close to 10 and 4.6 is close to 1. $10 \times 1 = 10$.

2. Which is the best estimate of 0.03×1.25?

a. 0, because 0.03 is close to 0 and 1.25 is close to 10. $0 \times 10 = 0$.

b. 0, because 0.03 is close to 1 and 1.25 is close to 1. $1 \times 1 = 1$.

c. 0, because 0.03 is close to 0 and 1.25 is close to 1. $0 \times 1 = 0$.

d. 0, because 0.03 is close to 1 and 1.25 is close to 10. $1 \times 10 = 10$.

3. Which is the best estimate of 1.16×16.93?

a. 2, because 1.16 is close to 2 and 16.53 is close to 1. $2 \times 1 = 2$.

b. 34, because 1.16 is close to 2 and 16.53 is close to 17. $2 \times 17 = 34$.

c. 17, because 1.16 is close to 1 and 16.93 is close to 17. $1 \times 17 = 17$.

d. 10, because 1.16 is close to 1 and 16.53 is close to 10. $1 \times 10 = 10$.

4. Julie multiplied 2.8×5.9. Her product was 16.52. Which of the following is the best reasoning about Julie's product?

a. Correct, because 2.8 is close to 3 and 5.9 is close to 6. $3 \times 6 = 18$.

b. Correct, because 2.8 is close to 1 and 5.9 is close to 5. $1 \times 5 = 5$.

c. Incorrect, because 2.8 is close to 10 and 5.9 is close to 6. $10 \times 6 = 60$.

d. Incorrect, because 2.8 is close to 1 and 5.9 is close to 10. $1 \times 10 = 10$.

3. Which is the best estimate of 1.16×16.93?

a. 2, because 1.16 is close to 2 and 16.53 is close to 1. $2 \times 1 = 2$.

b. 34, because 1.16 is close to 2 and 16.53 is close to 17. $2 \times 17 = 34$.

c. 17, because 1.16 is close to 1 and 16.93 is close to 17. $1 \times 17 = 17$.

d. 10, because 1.16 is close to 1 and 16.53 is close to 10. $1 \times 10 = 10$.

4. Julie multiplied 2.8×5.9. Her product was 16.52. Which of the following is the best reasoning about Julie's product?

a. Correct, because 2.8 is close to 3 and 5.9 is close to 6. $3 \times 6 = 18$.

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c. Incorrect, because 2.8 is close to 10 and 5.9 is close to 6. $10 \times 6 = 60$.

d. Incorrect, because 2.8 is close to 1 and 5.9 is close to 10. $1 \times 10 = 10$.

Additional Practice

1. Which of the following is the best range of estimates of the product of 16.2×2.6?

a. Between 1 and 6

b. Between 16 and 20

c. Between 32 and 51

d. Between 150 and 200

2. Daniel found the product of 16×0.7. Which of the following is his product and explanation?

a. 112, because $16 \times 7 = 112$.

b. 112.0, because $16 \times 7 = 112$ and there should be 1 digit to the right of the decimal point.

c. 11.2, because $16 \times 7 = 112$ and there should be 1 digit to the right of the decimal point.

d. 1.6 because 0.7 is close to 1 and there should be 1 digit to the right of the decimal point.

Additional Practice

1. Which of the following is the best range of estimates of the product of 16.2×2.6?

a. Between 1 and 6

b. Between 16 and 20

c. Between 32 and 51

d. Between 150 and 200

2. Daniel found the product of 16×0.7. Which of the following is his product and explanation?

a. 112, because $16 \times 7 = 112$.

b. 112.0, because $16 \times 7 = 112$ and there should be 1 digit to the right of the decimal point.

c. 11.2, because $16 \times 7 = 112$ and there should be 1 digit to the right of the decimal point.

d. 1.6 because 0.7 is close to 1 and there should be 1 digit to the right of the decimal point.

3. Which is the best estimate of 18.16×0.6?

a. 10, because 18.16 is close to 20 and 0.6 is close to one-half. One-half of 20 is 10.

b. 20, because 18.16 is close to 20 and 0.6 is close to 1. 20 x 1 = 20.

c. 3, because 18.16 is close to 18 and 0.6 is close to one-sixth. One-sixth of 18 is 3.

d. 1, because 18.16 is close to 2 and 0.6 is close to one-half. One-half of 2 is 1.

4. If the product of $317 \times 16 = 5{,}072$, what is the product of 3.17×1.6?

a. 507.2

b. 0.5072

c. 50.72

d. 5.072

3. Which is the best estimate of 18.16×0.6?

a. 10, because 18.16 is close to 20 and 0.6 is close to one-half. One-half of 20 is 10.

b. 20, because 18.16 is close to 20 and 0.6 is close to 1. 20 x 1 = 20.

c. 3, because 18.16 is close to 18 and 0.6 is close to one-sixth. One-sixth of 18 is 3.

d. 1, because 18.16 is close to 2 and 0.6 is close to one-half. One-half of 2 is 1.

4. If the product of $317 \times 16 = 5{,}072$, what is the product of 3.17×1.6?

a. 507.2

b. 0.5072

c. 50.72

d. 5.072

Additional Practice

1. Dorothy is making 5 dog leashes for her dog-walking business. Each leash needs 3.27 feet of rope. What is the total length of rope that she should buy?

a. 15.35 feet

b. 163.5 feet

c. 16.35 feet

d. 153.5 feet

2. William bought 21 markers. Each marker cost $0.27. About how much money did William spend?

a. $567

b. $56.70

c. $5.67

d. $0.567

Additional Practice

1. Dorothy is making 5 dog leashes for her dog-walking business. Each leash needs 3.27 feet of rope. What is the total length of rope that she should buy?

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2. William bought 21 markers. Each marker cost $0.27. About how much money did William spend?

a. $567
b. $56.70
c. $5.67
d. $0.567

3. What is the product of 4.7×0.9?

a. 4.23

b. 42.3

c. 423

d. 0.423

4. Jacob used his calculator to find the product of 0.137×0.426. What should his calculator show as the product?

a. 58.362

b. 5.8362

c. 0.58362

d. 0.058362

3. What is the product of 4.7×0.9?

a. 4.23

b. 42.3

c. 423

d. 0.423

4. Jacob used his calculator to find the product of 0.137×0.426. What should his calculator show as the product?

a. 58.362

b. 5.8362

c. 0.58362

d. 0.058362

Additional Practice

1. Which of the following has the greatest quotient?

a. 360 ÷ 104

b. 360 ÷ 1.04

c. 0.36 ÷ 0.0104

d. 36.0 ÷ 0.0104

2. Which of the following has a quotient close to 200?

a. 401.332 ÷ 20.309

b. 40.1332 ÷ 0.0203

c. 40.1332 ÷ 0.203

d. 4.1332 ÷ 0.203

Additional Practice

1. Which of the following has the greatest quotient?

a. 360 ÷ 104

b. 360 ÷ 1.04

c. 0.36 ÷ 0.0104

d. 36.0 ÷ 0.0104

2. Which of the following has a quotient close to 200?

a. 401.332 ÷ 20.309

b. 40.1332 ÷ 0.0203

c. 40.1332 ÷ 0.203

d. 4.1332 ÷ 0.203

3. Find the quotient of 17.25 ÷ 2.5

a. 6.9

b. 8.5

c. 8.9

d. 8.05

4. Emma divided 32.16 ÷ 0.8. Her quotient was 4.02. Is her quotient reasonable?

a. Yes, because 32.85 is close to 30 and 0.8 is close to 10. 30 ÷ 10 = 3

b. Yes, the quotient should be less than the dividend because 0.8 is less than 1.

c. No, because 32.85 is close to 300 and 0.8 is close to 10. 300 ÷ 10 = 30

d. No, because 32.85 is close to 30 and 0.8 is close to 1. 30 ÷ 1 = 30

3. Find the quotient of 17.25 ÷ 2.5

a. 6.9

b. 8.5

c. 8.9

d. 8.05

4. Emma divided 32.16 ÷ 0.8. Her quotient was 4.02. Is her quotient reasonable?

a. Yes, because 32.85 is close to 30 and 0.8 is close to 10. 30 ÷ 10 = 3

b. Yes, the quotient should be less than the dividend because 0.8 is less than 1.

c. No, because 32.85 is close to 300 and 0.8 is close to 10. 300 ÷ 10 = 30

d. No, because 32.85 is close to 30 and 0.8 is close to 1. 30 ÷ 1 = 30

Additional Practice

1. The diameter of the kapok tree, which is the largest tree in the Amazon, is approximately 27.34 feet. What is the radius of this tree? (Remember that a radius is half of the diameter.)

a. 27.34 feet

b. 30.34 feet

c. 27 feet

d. 13.67 feet

2. Martin's family spends $2,371.56 per year on cable service. About how much does Martin's family spend per month on cable service?

a. About $180 per month

b. About $190 per month

c. About $200 per month

d. About $210 per month

Additional Practice

1. The diameter of the kapok tree, which is the largest tree in the Amazon, is approximately 27.34 feet. What is the radius of this tree? (Remember that a radius is half of the diameter.)

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a. About $180 per month

b. About $190 per month

c. About $200 per month

d. About $210 per month

3. Tiffany went to the discount store, where everything sells for $5.82 each. If she spent $69.84, how many items did she buy?

a. 12 items

b. 13 items

c. 11 items

d. 14 items

4. William's mom bought ribbon to make the cheerleaders' bows. She paid $0.48 per foot for the ribbon. She spent $10.08. How many feet of ribbon did she buy?

a. 210 feet

b. 0.21 feet

c. 2.1 feet

d. 21 feet

3. Tiffany went to the discount store, where everything sells for $5.82 each. If she spent $69.84, how many items did she buy?

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d. 14 items

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a. 210 feet

b. 0.21 feet

c. 2.1 feet

d. 21 feet

Additional Practice

1. Jim had 12 reels of kite string. Each reel had 3.75 yards of string. What is the total number of yards of kite string that Jim had?

a. 15.75 yards

b. 8.25 yards

c. 3.2 yards

d. 45 yards

2. Chad bought 3.25 pounds of apples for $1.69 per pound. How much did he pay for the apples?

a. $5.49

b. $54.92

c. $0.55

d. $5.92

Additional Practice

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a. 15.75 yards

b. 8.25 yards

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d. 45 yards

2. Chad bought 3.25 pounds of apples for $1.69 per pound. How much did he pay for the apples?

a. $5.49

b. $54.92

c. $0.55

d. $5.92

3. Three friends and Matt went to lunch. Their lunch total was $25.36. They shared the bill evenly. How much did each person pay?

a. $63.40

b. $6.34

c. $8.45

d. $84.53

4. Sharon had 5.5 gallons of ice cream for the party. She served 3.75 gallons. How much ice cream does she have left?

a. 2.25 gallons

b. 3.25 gallons

c. 1.75 gallons

d. 9.25 gallons

3. Three friends and Matt went to lunch. Their lunch total was $25.36. They shared the bill evenly. How much did each person pay?

a. $63.40

b. $6.34

c. $8.45

d. $84.53

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Multiplication and Division

Timed Practice

The Meadows Center for Preventing Educational Risk—Mathematics Institute
The University of Texas at Austin

Multiplication and Division Facts: *Information*

Timed Fact Practice

Timed Fact Practice is a component of each module for students to practice developing automaticity with the facts. Research recommends that students spend about 10 minutes a day practicing facts to build automaticity. Three sets of facts are provided: Multiplication, Division, and Mixed Facts.

Content

This module contains 10 multiplication fact practice sheets, 10 division fact practice sheets, and 10 mixed fact practice sheets; answers are also included. The same set of facts must be used for the duration of the module to provide accurate data on students' progress.

Graphing

Have students practice the multiplication facts for 5 days (sheets 1 – 5; there are extra sheets if more practice is needed). Give students 1 minute to complete one sheet of 20 problems. Then, display the answers for the sheet and have students correct their work and put the number correct at the top of the sheet. Have students use the Facts Practice Graph to plot their number correct on each practice sheet. Repeat this procedure for division facts and then for mixed facts. Students can plot their number correct for each operation across 15 days: 5 days for multiplication, 5 days for division, and 5 days for mixed facts.

Motivation and Self-Regulation

By the middle grades, students with chronically low mathematics performance benefit from motivational strategies to keep them interested in learning or relearning mathematical ideas. Self-regulation, such as monitoring one's own performance, can be a powerful strategy for improving motivation for learning. Having students chart their own performance is a motivational strategy that can help to improve their mathematics performance.

Multiplication and Division Facts: *Common Misconceptions and How to Prevent Them*

Misconceptions	Examples for Preventing or Correcting
Some students believe repeated addition is the only definition of multiplication.	Teach students that repeated addition is only 1 way to represent multiplication. Explain to students that if A and B are nonnegative numbers, then A × B is the total of A groups of B.[1]
Some students universally believe multiplication can be used when adding groups.	Teach students that repeated addition of the same number of objects is 1 way of thinking of multiplication. Teach students that multiplication cannot be used when the number of objects in each group is not the same. Present examples and nonexamples (e.g., 5 + 5 + 5, 4 + 5 + 3). Demonstrate and have students differentiate between equal and unequal groups as well as identify when multiplication can and cannot be used.[3]
Some students believe that 4 × 3 and 3 × 4 have different answers.	Illustrate the commutative property of multiplication, using array models to prove the total (product) is the same.[2]
Some students may believe that 30 = 5 × 6 is written incorrectly because the product (30) must follow the equal sign.	Teach students the meaning of the equal sign and explain that the equal sign means "equals" or "is equal to" and that the expressions on each side of the equal sign have the same value.[2]
Some students do not connect the rows with the columns in a multiplication table.	Draw attention to the row as each column is completed. Provide additional instruction on the commutative property of multiplication and the multiplication table's design as needed.
Some students believe that performing a strategy, such as doubling, changes the total number in the array.	Teach students that the doubling strategy changes how the arrays look but not the total number. Use visualizations and manipulatives as needed.
Students may assume that the commutative property also holds for division—for example, assuming that 15 ÷ 3 = 5, so 3 ÷ 15 = 5.	Demonstrate an example, such as the following. Have 15 sheets of paper to share among 3 people. Ask students, "How many sheets of paper does each person get?" (5) Have 3 sheets of paper to share among 15 people. Ask students, "How many sheets of paper does each person get?" ($\frac{1}{5}$) For each demonstration, write the equation on the board. Draw attention to the quotients, which are different.

Some students may confuse fact families with the set of a number and all its factors (12: 1, 2, 3, 4, 6, 12).	Teach students that a family of facts consists of 3 numbers, 2 of which are the factors that when multiplied equal the product.
Some students may believe a family of facts consists of any 2 factors of a product and the product.	Emphasize that the equation constructed with these numbers must be true. For example, if students offer 5, 10, and 20, ask what the equation is ($5 \times 10 = 20$) and whether it is true.
Some students may need a more concrete model showing how multiplying by powers of 10 works.	If so, use base-ten blocks to show 10, 100, and 1,000, as well as 20, 200, and 2,000. Show students how, in each place, the number in the second group is 2 times larger than the number in the first group: 2 is 2 times larger than 1, 20 is 2 times larger than 10, etc. The factor is always 2, and the number of 0s represents the other factor: 10, 100, or 1,000.

1. Beckman, S. (2011). *Mathematics for elementary teachers with activity manual* (3rd ed.). Boston, MA: Addison-Wesley.
2. National Council of Teachers of Mathematics. (2009). *Focus in grade 3: Teaching with curriculum focal points.* Reston, VA: Author.
3. Scott Foresman & Addison Wesley. (2009). *enVision math Texas: Grade 5.* Glenview: IL: Pearson Education.

Name: _____

Multiplication Timed Practice Sheet 1

Number Correct: _____

1	8×2	**2**	1×7	**3**	5×8	**4**	6×3
5	7×4	**6**	6×6	**7**	2×12	**8**	4×5
9	7×6	**10**	3×9	**11**	11×5	**12**	3×3
13	8×9	**14**	2×4	**15**	6×9	**16**	4×12
17	9×6	**18**	10×8	**19**	2×9	**20**	8×3

Multiplication Timed Practice Sheet 1

1	8 × 2 = 16	**2**	1 × 7 = 7	**3**	5 × 8 = 40	**4**	6 × 3 = 18
5	7 × 4 = 28	**6**	6 × 6 = 36	**7**	2 × 12 = 24	**8**	4 × 5 = 20
9	7 × 6 = 42	**10**	3 × 9 = 27	**11**	11 × 5 = 55	**12**	3 × 3 = 9
13	8 × 9 = 72	**14**	2 × 4 = 8	**15**	6 × 9 = 54	**16**	4 × 12 = 48
17	9 × 6 = 54	**18**	10 × 8 = 80	**19**	2 × 9 = 18	**20**	8 × 3 = 24

Name: _____

Multiplication Timed Practice Sheet 2

Number Correct: _____

1	7 × 2	**2**	5 × 5	**3**	9 × 1	**4**	7 × 11
5	5 × 6	**6**	10 × 3	**7**	7 × 5	**8**	3 × 4
9	4 × 9	**10**	4 × 7	**11**	12 × 6	**12**	7 × 8
13	7 × 10	**14**	8 × 6	**15**	6 × 7	**16**	5 × 3
17	9 × 8	**18**	6 × 4	**19**	9 × 4	**20**	8 × 4

Multiplication Timed Practice Sheet 2

1	7 × 2 = 14	**2**	5 × 5 = 25	**3**	9 × 1 = 9	**4**	7 × 11 = 77
5	5 × 6 = 30	**6**	10 × 3 = 30	**7**	7 × 5 = 35	**8**	3 × 4 = 12
9	4 × 9 = 36	**10**	4 × 7 = 28	**11**	12 × 6 = 72	**12**	7 × 8 = 56
13	7 × 10 = 70	**14**	8 × 6 = 48	**15**	6 × 7 = 42	**16**	5 × 3 = 15
17	9 × 8 = 72	**18**	6 × 4 = 24	**19**	9 × 4 = 36	**20**	8 × 4 = 32

Name: _____

Multiplication Timed Practice Sheet 3

Number Correct: _____

1 1 × 12	**2** 4 × 3	**3** 5 × 2	**4** 10 × 7
5 10 × 2	**6** 4 × 8	**7** 3 × 7	**8** 12 × 7
9 11 × 6	**10** 3 × 12	**11** 4 × 6	**12** 5 × 9
13 8 × 7	**14** 7 × 3	**15** 8 × 8	**16** 5 × 10
17 5 × 4	**18** 9 × 2	**19** 3 × 11	**20** 9 × 7

Multiplication Timed Practice Sheet 3

1	1 × 12 = 12	**2**	4 × 3 = 12	**3**	5 × 2 = 10	**4**	10 × 7 = 70
5	10 × 2 = 20	**6**	4 × 8 = 32	**7**	3 × 7 = 21	**8**	12 × 7 = 84
9	11 × 6 = 66	**10**	3 × 12 = 36	**11**	4 × 6 = 24	**12**	5 × 9 = 45
13	8 × 7 = 56	**14**	7 × 3 = 21	**15**	8 × 8 = 64	**16**	5 × 10 = 50
17	5 × 4 = 20	**18**	9 × 2 = 18	**19**	3 × 11 = 33	**20**	9 × 7 = 63

Name: _____

Multiplication Timed Practice Sheet 4

Number Correct: _____

1	2 × 8	**2**	3 × 6	**3**	8 × 5	**4**	2 × 7
5	11 × 9	**6**	4 × 4	**7**	9 × 4	**8**	3 × 10
9	5 × 9	**10**	5 × 12	**11**	7 × 3	**12**	1 × 5
13	3 × 2	**14**	6 × 8	**15**	9 × 11	**16**	4 × 5
17	12 × 5	**18**	4 × 2	**19**	7 × 7	**20**	10 × 10

Multiplication Timed Practice Sheet 4

1	2 × 8 = 16	**2**	3 × 6 = 18	**3**	8 × 5 = 40	**4**	2 × 7 = 14
5	11 × 9 = 99	**6**	4 × 4 = 16	**7**	9 × 4 = 36	**8**	3 × 10 = 30
9	5 × 9 = 45	**10**	5 × 12 = 60	**11**	7 × 3 = 21	**12**	1 × 5 = 5
13	3 × 2 = 6	**14**	6 × 8 = 48	**15**	9 × 11 = 99	**16**	4 × 5 = 20
17	12 × 5 = 60	**18**	4 × 2 = 8	**19**	7 × 7 = 49	**20**	10 × 10 = 100

Name: _____

Multiplication Timed Practice Sheet 5

Number Correct: _____

1	4 × 6	**2**	9 × 3	**3**	5 × 11	**4**	10 × 5
5	5 × 7	**6**	2 × 10	**7**	3 × 1	**8**	12 × 5
9	8 × 6	**10**	6 × 12	**11**	6 × 2	**12**	7 × 7
13	4 × 7	**14**	5 × 3	**15**	3 × 8	**16**	12 × 2
17	9 × 3	**18**	11 × 4	**19**	7 × 4	**20**	9 × 10

Multiplication Timed Practice Sheet 5

1	4 × 6 = 24	**2**	9 × 3 = 27	**3**	5 × 11 = 55	**4**	10 × 5 = 50
5	5 × 7 = 35	**6**	2 × 10 = 20	**7**	3 × 1 = 3	**8**	12 × 5 = 60
9	8 × 6 = 48	**10**	6 × 12 = 72	**11**	6 × 2 = 12	**12**	7 × 7 = 49
13	4 × 7 = 28	**14**	5 × 3 = 15	**15**	3 × 8 = 24	**16**	12 × 2 = 24
17	9 × 3 = 27	**18**	11 × 4 = 44	**19**	7 × 4 = 28	**20**	9 × 10 = 90

Name: _____

Multiplication Timed Practice Sheet 6

Number Correct: _____

1 4 × 3	**2** 3 × 6	**3** 7 × 5	**4** 6 × 4
5 8 × 10	**6** 2 × 2	**7** 11 × 2	**8** 5 × 5
9 3 × 5	**10** 4 × 8	**11** 7 × 9	**12** 8 × 12
13 2 × 10	**14** 1 × 8	**15** 6 × 11	**16** 11 × 12
17 12 × 8	**18** 10 × 6	**19** 2 × 5	**20** 9 × 7

Multiplication Timed Practice Sheet 6

1	4 × 3 = 12	**2**	3 × 6 = 18	**3**	7 × 5 = 35	**4**	6 × 4 = 24
5	8 × 10 = 80	**6**	2 × 2 = 4	**7**	11 × 2 = 22	**8**	5 × 5 = 25
9	3 × 5 = 15	**10**	4 × 8 = 32	**11**	7 × 9 = 63	**12**	8 × 12 = 96
13	2 × 10 = 20	**14**	1 × 8 = 8	**15**	6 × 11 = 66	**16**	11 × 12 = 132
17	12 × 8 = 96	**18**	10 × 6 = 60	**19**	2 × 5 = 10	**20**	9 × 7 = 63

Name: _____

Multiplication Timed Practice Sheet 7

Number Correct: _____

1	5 × 8	**2**	4 × 4	**3**	5 × 7	**4**	9 × 2
5	8 × 11	**6**	3 × 7	**7**	2 × 6	**8**	3 × 5
9	3 × 4	**10**	9 × 12	**11**	6 × 10	**12**	8 × 3
13	12 × 11	**14**	8 × 8	**15**	5 × 4	**16**	1 × 11
17	6 × 7	**18**	7 × 6	**19**	10 × 9	**20**	6 × 5

Multiplication Timed Practice Sheet 7

1	5 × 8 = 40	**2**	4 × 4 = 16	**3**	5 × 7 = 35	**4**	9 × 2 = 18
5	8 × 11 = 88	**6**	3 × 7 = 21	**7**	2 × 6 = 12	**8**	3 × 5 = 15
9	3 × 4 = 12	**10**	9 × 12 = 108	**11**	6 × 10 = 60	**12**	8 × 3 = 24
13	12 × 11 = 132	**14**	8 × 8 = 64	**15**	5 × 4 = 20	**16**	1 × 11 = 11
17	6 × 7 = 42	**18**	7 × 6 = 42	**19**	10 × 9 = 90	**20**	6 × 5 = 30

Name: _____

Multiplication Timed Practice Sheet 8

Number Correct: _____

1 3 × 10	**2** 9 × 6	**3** 11 × 2	**4** 6 × 10
5 7 × 9	**6** 8 × 7	**7** 5 × 2	**8** 4 × 11
9 4 × 1	**10** 6 × 9	**11** 6 × 5	**12** 8 × 5
13 10 × 3	**14** 11 × 7	**15** 2 × 12	**16** 9 × 9
17 6 × 8	**18** 2 × 3	**19** 7 × 12	**20** 4 × 2

Multiplication Timed Practice Sheet 8

1	3 × 10 = 30	**2**	9 × 6 = 54	**3**	11 × 2 = 22	**4**	6 × 10 = 60
5	7 × 9 = 63	**6**	8 × 7 = 56	**7**	5 × 2 = 10	**8**	4 × 11 = 44
9	4 × 1 = 4	**10**	6 × 9 = 54	**11**	6 × 5 = 30	**12**	8 × 5 = 40
13	10 × 3 = 30	**14**	11 × 7 = 77	**15**	2 × 12 = 24	**16**	9 × 9 = 81
17	6 × 8 = 48	**18**	2 × 3 = 6	**19**	7 × 12 = 84	**20**	4 × 2 = 8

Name: _____

Multiplication Timed Practice Sheet 9

Number Correct: _____

1	6 × 2	**2**	9 × 5	**3**	11 × 8	**4**	2 × 6
5	5 × 6	**6**	8 × 9	**7**	9 × 8	**8**	10 × 4
9	12 × 3	**10**	11 × 11	**11**	4 × 10	**12**	7 × 8
13	3 × 9	**14**	4 × 9	**15**	8 × 2	**16**	12 × 9
17	11 × 3	**18**	10 × 7	**19**	1 × 6	**20**	2 × 8

Multiplication Timed Practice Sheet 9

1	6 × 2 = 12	**2**	9 × 5 = 45	**3**	11 × 8 = 88	**4**	2 × 6 = 12
5	5 × 6 = 30	**6**	8 × 9 = 72	**7**	9 × 8 = 72	**8**	10 × 4 = 40
9	12 × 3 = 36	**10**	11 × 11 = 121	**11**	4 × 10 = 40	**12**	7 × 8 = 56
13	3 × 9 = 27	**14**	4 × 9 = 36	**15**	8 × 2 = 16	**16**	12 × 9 = 108
17	11 × 3 = 33	**18**	10 × 7 = 70	**19**	1 × 6 = 6	**20**	2 × 8 = 16

Name: _____

Multiplication Timed Practice Sheet 10

Number Correct: _____

1	3 × 8	**2**	6 × 3	**3**	3 × 3	**4**	10 × 1
5	2 × 5	**6**	2 × 11	**7**	9 × 9	**8**	9 × 5
9	2 × 9	**10**	6 × 6	**11**	2 × 3	**12**	12 × 3
13	2 × 7	**14**	12 × 10	**15**	8 × 4	**16**	11 × 8
17	11 × 4	**18**	5 × 5	**19**	10 × 11	**20**	7 × 2

Multiplication Timed Practice Sheet 10

1	3 × 8 = 24	**2**	6 × 3 = 18	**3**	3 × 3 = 9	**4**	10 × 1 = 10
5	2 × 5 = 10	**6**	2 × 11 = 22	**7**	9 × 9 = 81	**8**	9 × 5 = 45
9	2 × 9 = 18	**10**	6 × 6 = 36	**11**	2 × 3 = 6	**12**	12 × 3 = 36
13	2 × 7 = 14	**14**	12 × 10 = 120	**15**	8 × 4 = 32	**16**	11 × 8 = 88
17	11 × 4 = 44	**18**	5 × 5 = 25	**19**	10 × 11 = 110	**20**	7 × 2 = 14

Name: _____

Division Timed Practice Sheet 1

Number Correct: _____

1	$7\overline{)21}$	**2**	$5\overline{)10}$	**3**	$2\overline{)14}$	**4**	$9\overline{)27}$
5	$6\overline{)24}$	**6**	$10\overline{)70}$	**7**	$8\overline{)32}$	**8**	$6\overline{)36}$
9	$3\overline{)9}$	**10**	$5\overline{)35}$	**11**	$1\overline{)8}$	**12**	$12\overline{)24}$
13	$2\overline{)20}$	**14**	$8\overline{)40}$	**15**	$3\overline{)15}$	**16**	$4\overline{)32}$
17	$4\overline{)28}$	**18**	$7\overline{)42}$	**19**	$9\overline{)63}$	**20**	$6\overline{)66}$

Division Timed Practice Sheet 1

1	$7\overline{)21}$	**2**	$5\overline{)10}$	**3**	$2\overline{)14}$	**4**	$9\overline{)27}$
5	$6\overline{)24}$	**6**	$10\overline{)70}$	**7**	$8\overline{)32}$	**8**	$6\overline{)36}$
9	$3\overline{)9}$	**10**	$5\overline{)35}$	**11**	$1\overline{)8}$	**12**	$12\overline{)24}$
13	$2\overline{)20}$	**14**	$8\overline{)40}$	**15**	$3\overline{)15}$	**16**	$4\overline{)32}$
17	$4\overline{)28}$	**18**	$7\overline{)42}$	**19**	$9\overline{)63}$	**20**	$6\overline{)66}$

Name: _____

Division Timed Practice Sheet 2

Number Correct: _____

1	$2\overline{)10}$	**2**	$3\overline{)27}$	**3**	$3\overline{)21}$	**4**	$7\overline{)14}$
5	$6\overline{)30}$	**6**	$1\overline{)6}$	**7**	$6\overline{)54}$	**8**	$12\overline{)60}$
9	$3\overline{)36}$	**10**	$4\overline{)24}$	**11**	$5\overline{)25}$	**12**	$10\overline{)80}$
13	$8\overline{)16}$	**14**	$11\overline{)44}$	**15**	$8\overline{)24}$	**16**	$5\overline{)30}$
17	$9\overline{)54}$	**18**	$6\overline{)60}$	**19**	$8\overline{)72}$	**20**	$7\overline{)56}$

Division Timed Practice Sheet 2

1	$2\overline{)10}$ = 5	**2**	$3\overline{)27}$ = 9	**3**	$3\overline{)21}$ = 7	**4**	$7\overline{)14}$ = 2
5	$6\overline{)30}$ = 5	**6**	$1\overline{)6}$ = 6	**7**	$6\overline{)54}$ = 9	**8**	$12\overline{)60}$ = 5
9	$3\overline{)36}$ = 12	**10**	$4\overline{)24}$ = 6	**11**	$5\overline{)25}$ = 5	**12**	$10\overline{)80}$ = 8
13	$8\overline{)16}$ = 2	**14**	$11\overline{)44}$ = 4	**15**	$8\overline{)24}$ = 3	**16**	$5\overline{)30}$ = 6
17	$9\overline{)54}$ = 6	**18**	$6\overline{)60}$ = 10	**19**	$8\overline{)72}$ = 9	**20**	$7\overline{)56}$ = 8

Name: _____

Division Timed Practice Sheet 3

Number Correct: _____

1	$11\overline{)66}$	**2**	$2\overline{)18}$	**3**	$6\overline{)42}$	**4**	$7\overline{)63}$
5	$5\overline{)45}$	**6**	$3\overline{)24}$	**7**	$9\overline{)36}$	**8**	$1\overline{)12}$
9	$4\overline{)20}$	**10**	$10\overline{)30}$	**11**	$9\overline{)36}$	**12**	$9\overline{)90}$
13	$8\overline{)80}$	**14**	$3\overline{)18}$	**15**	$8\overline{)24}$	**16**	$4\overline{)16}$
17	$7\overline{)35}$	**18**	$6\overline{)18}$	**19**	$9\overline{)99}$	**20**	$12\overline{)120}$

Division Timed Practice Sheet 3

1	$11\overline{)66}$ = 6	**2**	$2\overline{)18}$ = 9	**3**	$6\overline{)42}$ = 7	**4**	$7\overline{)63}$ = 9
5	$5\overline{)45}$ = 9	**6**	$3\overline{)24}$ = 8	**7**	$9\overline{)36}$ = 4	**8**	$1\overline{)12}$ = 12
9	$4\overline{)20}$ = 5	**10**	$10\overline{)30}$ = 3	**11**	$9\overline{)36}$ = 4	**12**	$9\overline{)90}$ = 10
13	$8\overline{)80}$ = 10	**14**	$3\overline{)18}$ = 6	**15**	$8\overline{)24}$ = 3	**16**	$4\overline{)16}$ = 4
17	$7\overline{)35}$ = 5	**18**	$6\overline{)18}$ = 3	**19**	$9\overline{)99}$ = 11	**20**	$12\overline{)120}$ = 10

Name: _____

Division Timed Practice Sheet 4

Number Correct: _____

1	$5\overline{)15}$	**2**	$11\overline{)55}$	**3**	$4\overline{)12}$	**4**	$9\overline{)45}$
5	$7\overline{)28}$	**6**	$4\overline{)36}$	**7**	$1\overline{)7}$	**8**	$10\overline{)60}$
9	$2\overline{)16}$	**10**	$5\overline{)40}$	**11**	$8\overline{)56}$	**12**	$2\overline{)24}$
13	$9\overline{)18}$	**14**	$11\overline{)88}$	**15**	$12\overline{)48}$	**16**	$7\overline{)49}$
17	$7\overline{)56}$	**18**	$3\overline{)6}$	**19**	$4\overline{)40}$	**20**	$6\overline{)30}$

Division Timed Practice Sheet 4

1	$5\overline{)15}$	**2**	$11\overline{)55}$	**3**	$4\overline{)12}$	**4**	$9\overline{)45}$
5	$7\overline{)28}$	**6**	$4\overline{)36}$	**7**	$1\overline{)7}$	**8**	$10\overline{)60}$
9	$2\overline{)16}$	**10**	$5\overline{)40}$	**11**	$8\overline{)56}$	**12**	$2\overline{)24}$
13	$9\overline{)18}$	**14**	$11\overline{)88}$	**15**	$12\overline{)48}$	**16**	$7\overline{)49}$
17	$7\overline{)56}$	**18**	$3\overline{)6}$	**19**	$4\overline{)40}$	**20**	$6\overline{)30}$

Name: _____

Division Timed Practice Sheet 5

Number Correct: _____

1	$3\overline{)21}$	**2**	$6\overline{)12}$	**3**	$3\overline{)36}$	**4**	$3\overline{)15}$
5	$9\overline{)36}$	**6**	$8\overline{)48}$	**7**	$3\overline{)12}$	**8**	$10\overline{)90}$
9	$4\overline{)24}$	**10**	$5\overline{)60}$	**11**	$11\overline{)33}$	**12**	$8\overline{)64}$
13	$1\overline{)4}$	**14**	$4\overline{)28}$	**15**	$6\overline{)48}$	**16**	$5\overline{)55}$
17	$12\overline{)24}$	**18**	$7\overline{)70}$	**19**	$9\overline{)27}$	**20**	$12\overline{)96}$

Division Timed Practice Sheet 5

1	$3\overline{)21}$ = 7	**2**	$6\overline{)12}$ = 2	**3**	$3\overline{)36}$ = 12	**4**	$3\overline{)15}$ = 5
5	$9\overline{)36}$ = 4	**6**	$8\overline{)48}$ = 6	**7**	$3\overline{)12}$ = 4	**8**	$10\overline{)90}$ = 9
9	$4\overline{)24}$ = 6	**10**	$5\overline{)60}$ = 12	**11**	$11\overline{)33}$ = 3	**12**	$8\overline{)64}$ = 8
13	$1\overline{)4}$ = 4	**14**	$4\overline{)28}$ = 7	**15**	$6\overline{)48}$ = 8	**16**	$5\overline{)55}$ = 11
17	$12\overline{)24}$ = 2	**18**	$7\overline{)70}$ = 10	**19**	$9\overline{)27}$ = 3	**20**	$12\overline{)96}$ = 8

Name: _____

Division Timed Practice Sheet 6

Number Correct: _____

1	$2\overline{)20}$	**2**	$8\overline{)16}$	**3**	$5\overline{)20}$	**4**	$1\overline{)3}$
5	$5\overline{)35}$	**6**	$4\overline{)44}$	**7**	$6\overline{)48}$	**8**	$11\overline{)110}$
9	$3\overline{)18}$	**10**	$2\overline{)4}$	**11**	$3\overline{)27}$	**12**	$6\overline{)72}$
13	$9\overline{)81}$	**14**	$3\overline{)24}$	**15**	$10\overline{)20}$	**16**	$4\overline{)48}$
17	$6\overline{)30}$	**18**	$10\overline{)110}$	**19**	$9\overline{)54}$	**20**	$7\overline{)28}$

Division Timed Practice Sheet 6

1	$2\overline{)20}$ = 10	**2**	$8\overline{)16}$ = 2	**3**	$5\overline{)20}$ = 4	**4**	$1\overline{)3}$ = 3
5	$5\overline{)35}$ = 7	**6**	$4\overline{)44}$ = 11	**7**	$6\overline{)48}$ = 8	**8**	$11\overline{)110}$ = 10
9	$3\overline{)18}$ = 6	**10**	$2\overline{)4}$ = 2	**11**	$3\overline{)27}$ = 9	**12**	$6\overline{)72}$ = 12
13	$9\overline{)81}$ = 9	**14**	$3\overline{)24}$ = 8	**15**	$10\overline{)20}$ = 2	**16**	$4\overline{)48}$ = 12
17	$6\overline{)30}$ = 5	**18**	$10\overline{)110}$ = 11	**19**	$9\overline{)54}$ = 6	**20**	$7\overline{)28}$ = 4

Name: _____

Division Timed Practice Sheet 7

Number Correct: _____

1	$2\overline{)10}$	**2**	$8\overline{)40}$	**3**	$3\overline{)9}$	**4**	$11\overline{)55}$
5	$8\overline{)56}$	**6**	$8\overline{)32}$	**7**	$7\overline{)63}$	**8**	$2\overline{)22}$
9	$4\overline{)36}$	**10**	$10\overline{)80}$	**11**	$8\overline{)64}$	**12**	$12\overline{)72}$
13	$5\overline{)15}$	**14**	$9\overline{)63}$	**15**	$7\overline{)77}$	**16**	$6\overline{)18}$
17	$5\overline{)50}$	**18**	$6\overline{)36}$	**19**	$6\overline{)24}$	**20**	$1\overline{)9}$

Division Timed Practice Sheet 7

1	$2\overline{)10}$ = 5	**2**	$8\overline{)40}$ = 5	**3**	$3\overline{)9}$ = 3	**4**	$11\overline{)55}$ = 5
5	$8\overline{)56}$ = 7	**6**	$8\overline{)32}$ = 4	**7**	$7\overline{)63}$ = 9	**8**	$2\overline{)22}$ = 11
9	$4\overline{)36}$ = 9	**10**	$10\overline{)80}$ = 8	**11**	$8\overline{)64}$ = 8	**12**	$12\overline{)72}$ = 6
13	$5\overline{)15}$ = 3	**14**	$9\overline{)63}$ = 7	**15**	$7\overline{)77}$ = 11	**16**	$6\overline{)18}$ = 3
17	$5\overline{)50}$ = 10	**18**	$6\overline{)36}$ = 6	**19**	$6\overline{)24}$ = 4	**20**	$1\overline{)9}$ = 9

Name: _____

Division Timed Practice Sheet 8

Number Correct: _____

1	$9\overline{)45}$	**2**	$11\overline{)66}$	**3**	$2\overline{)4}$	**4**	$2\overline{)12}$
5	$1\overline{)5}$	**6**	$12\overline{)108}$	**7**	$5\overline{)55}$	**8**	$7\overline{)49}$
9	$5\overline{)60}$	**10**	$4\overline{)8}$	**11**	$4\overline{)32}$	**12**	$10\overline{)40}$
13	$7\overline{)84}$	**14**	$7\overline{)21}$	**15**	$12\overline{)144}$	**16**	$6\overline{)54}$
17	$9\overline{)81}$	**18**	$11\overline{)99}$	**19**	$4\overline{)40}$	**20**	$5\overline{)50}$

Division Timed Practice Sheet 8

1	$9\overline{)45}$ = 5	**2**	$11\overline{)66}$ = 6	**3**	$2\overline{)4}$ = 2	**4**	$2\overline{)12}$ = 6
5	$1\overline{)5}$ = 5	**6**	$12\overline{)108}$ = 9	**7**	$5\overline{)55}$ = 11	**8**	$7\overline{)49}$ = 7
9	$5\overline{)60}$ = 12	**10**	$4\overline{)8}$ = 2	**11**	$4\overline{)32}$ = 8	**12**	$10\overline{)40}$ = 4
13	$7\overline{)84}$ = 12	**14**	$7\overline{)21}$ = 3	**15**	$12\overline{)144}$ = 12	**16**	$6\overline{)54}$ = 9
17	$9\overline{)81}$ = 9	**18**	$11\overline{)99}$ = 9	**19**	$4\overline{)40}$ = 10	**20**	$5\overline{)50}$ = 10

Name: _____

Division Timed Practice Sheet 9

Number Correct: _____

1	$11\overline{)22}$	**2**	$4\overline{)12}$	**3**	$6\overline{)66}$	**4**	$5\overline{)30}$
5	$4\overline{)16}$	**6**	$2\overline{)6}$	**7**	$5\overline{)45}$	**8**	$10\overline{)120}$
9	$10\overline{)40}$	**10**	$8\overline{)88}$	**11**	$8\overline{)72}$	**12**	$12\overline{)36}$
13	$2\overline{)14}$	**14**	$11\overline{)121}$	**15**	$7\overline{)35}$	**16**	$1\overline{)10}$
17	$4\overline{)48}$	**18**	$9\overline{)72}$	**19**	$12\overline{)84}$	**20**	$3\overline{)33}$

Division Timed Practice Sheet 9

1	$11\overline{)22}$ = 2	**2**	$4\overline{)12}$ = 3	**3**	$6\overline{)66}$ = 11	**4**	$5\overline{)30}$ = 6
5	$4\overline{)16}$ = 4	**6**	$2\overline{)6}$ = 3	**7**	$5\overline{)45}$ = 9	**8**	$10\overline{)120}$ = 12
9	$10\overline{)40}$ = 4	**10**	$8\overline{)88}$ = 11	**11**	$8\overline{)72}$ = 9	**12**	$12\overline{)36}$ = 3
13	$2\overline{)14}$ = 7	**14**	$11\overline{)121}$ = 11	**15**	$7\overline{)35}$ = 5	**16**	$1\overline{)10}$ = 10
17	$4\overline{)48}$ = 12	**18**	$9\overline{)72}$ = 8	**19**	$12\overline{)84}$ = 7	**20**	$3\overline{)33}$ = 11

Name: _____

Division Timed Practice Sheet 10

Number Correct: _____

1	$10\overline{)70}$	**2**	$6\overline{)12}$	**3**	$2\overline{)8}$	**4**	$3\overline{)12}$
5	$5\overline{)25}$	**6**	$6\overline{)42}$	**7**	$5\overline{)20}$	**8**	$3\overline{)30}$
9	$2\overline{)18}$	**10**	$10\overline{)100}$	**11**	$4\overline{)12}$	**12**	$8\overline{)48}$
13	$7\overline{)42}$	**14**	$12\overline{)36}$	**15**	$4\overline{)48}$	**16**	$11\overline{)77}$
17	$9\overline{)72}$	**18**	$1\overline{)11}$	**19**	$3\overline{)33}$	**20**	$5\overline{)10}$

Division Timed Practice Sheet 10

1	$10\overline{)70}$ = 7	**2**	$6\overline{)12}$ = 2	**3**	$2\overline{)8}$ = 4	**4**	$3\overline{)12}$ = 4
5	$5\overline{)25}$ = 5	**6**	$6\overline{)42}$ = 7	**7**	$5\overline{)20}$ = 4	**8**	$3\overline{)30}$ = 10
9	$2\overline{)18}$ = 9	**10**	$10\overline{)100}$ = 10	**11**	$4\overline{)12}$ = 3	**12**	$8\overline{)48}$ = 6
13	$7\overline{)42}$ = 6	**14**	$12\overline{)36}$ = 3	**15**	$4\overline{)48}$ = 12	**16**	$11\overline{)77}$ = 7
17	$9\overline{)72}$ = 8	**18**	$1\overline{)11}$ = 11	**19**	$3\overline{)33}$ = 11	**20**	$5\overline{)10}$ = 2

Name: _____

Mixed Facts Timed Practice Sheet 1

Number Correct: _____

1	4×7	**2**	$2\overline{)16}$	**3**	4×5	**4**	$7\overline{)21}$
5	11×1	**6**	$7\overline{)56}$	**7**	8×8	**8**	3×4
9	$4\overline{)36}$	**10**	$3\overline{)18}$	**11**	$8\overline{)64}$	**12**	3×12
13	$9\overline{)45}$	**14**	$7\overline{)70}$	**15**	7×6	**16**	10×6
17	8×2	**18**	9×6	**19**	$5\overline{)20}$	**20**	$5\overline{)55}$

Mixed Facts Timed Practice Sheet 1

1 $4 \times 7 = 28$

2 $2\overline{)16} = 8$

3 $4 \times 5 = 20$

4 $7\overline{)21} = 3$

5 $11 \times 1 = 11$

6 $7\overline{)56} = 8$

7 $8 \times 8 = 64$

8 $3 \times 4 = 12$

9 $4\overline{)36} = 9$

10 $3\overline{)18} = 6$

11 $8\overline{)64} = 8$

12 $3 \times 12 = 36$

13 $9\overline{)45} = 5$

14 $7\overline{)70} = 10$

15 $7 \times 6 = 42$

16 $10 \times 6 = 60$

17 $8 \times 2 = 16$

18 $9 \times 6 = 54$

19 $5\overline{)20} = 4$

20 $5\overline{)55} = 11$

Name: _____

Mixed Facts Timed Practice Sheet 2

Number Correct: _____

1	2×9	**2**	5×10	**3**	$2\overline{)12}$	**4**	5×7
5	$6\overline{)42}$	**6**	11×4	**7**	7×8	**8**	$8\overline{)32}$
9	$6\overline{)54}$	**10**	$3\overline{)33}$	**11**	5×12	**12**	$1\overline{)12}$
13	12×2	**14**	$4\overline{)16}$	**15**	6×9	**16**	3×6
17	$12\overline{)24}$	**18**	3×8	**19**	$10\overline{)20}$	**20**	$4\overline{)8}$

Mixed Facts Timed Practice Sheet 2

1 $2 \times 9 = 18$

2 $5 \times 10 = 50$

3 $2\overline{)12} = 6$

4 $5 \times 7 = 35$

5 $6\overline{)42} = 7$

6 $11 \times 4 = 44$

7 $7 \times 8 = 56$

8 $8\overline{)32} = 4$

9 $6\overline{)54} = 9$

10 $3\overline{)33} = 11$

11 $5 \times 12 = 60$

12 $1\overline{)12} = 12$

13 $12 \times 2 = 24$

14 $4\overline{)16} = 4$

15 $6 \times 9 = 54$

16 $3 \times 6 = 18$

17 $12\overline{)24} = 2$

18 $3 \times 8 = 24$

19 $10\overline{)20} = 2$

20 $4\overline{)8} = 2$

Name: _____

Mixed Facts Timed Practice Sheet 3

Number Correct: _____

1	8×5	**2**	$3\overline{)12}$	**3**	4×8	**4**	$8\overline{)56}$
5	7×7	**6**	$10\overline{)60}$	**7**	$4\overline{)8}$	**8**	6×1
9	$10\overline{)100}$	**10**	9×2	**11**	$9\overline{)99}$	**12**	3×5
13	10×11	**14**	5×2	**15**	$3\overline{)27}$	**16**	12×4
17	$8\overline{)40}$	**18**	7×9	**19**	$5\overline{)35}$	**20**	$12\overline{)36}$

Mixed Facts Timed Practice Sheet 3

1 $8 \times 5 = 40$

2 $12 \div 3 = 4$

3 $4 \times 8 = 32$

4 $56 \div 8 = 7$

5 $7 \times 7 = 49$

6 $60 \div 10 = 6$

7 $8 \div 4 = 2$

8 $6 \times 1 = 6$

9 $100 \div 10 = 10$

10 $9 \times 2 = 18$

11 $99 \div 9 = 11$

12 $3 \times 5 = 15$

13 $10 \times 11 = 110$

14 $5 \times 2 = 10$

15 $27 \div 3 = 9$

16 $12 \times 4 = 48$

17 $40 \div 8 = 5$

18 $7 \times 9 = 63$

19 $35 \div 5 = 7$

20 $36 \div 12 = 3$

Name: _____

Mixed Facts Timed Practice Sheet 4

Number Correct: _____

1	4×6	**2**	$5\overline{)40}$	**3**	2×11	**4**	$3\overline{)21}$
5	$1\overline{)7}$	**6**	12×6	**7**	$4\overline{)12}$	**8**	2×10
9	6×8	**10**	$5\overline{)50}$	**11**	3×3	**12**	$9\overline{)72}$
13	8×10	**14**	7×4	**15**	$11\overline{)99}$	**16**	5×9
17	$12\overline{)60}$	**18**	$6\overline{)36}$	**19**	3×5	**20**	$7\overline{)28}$

Mixed Facts Timed Practice Sheet 4

1 $4 \times 6 = 24$

2 $5\overline{)40} = 8$

3 $2 \times 11 = 22$

4 $3\overline{)21} = 7$

5 $1\overline{)7} = 7$

6 $12 \times 6 = 72$

7 $4\overline{)12} = 3$

8 $2 \times 10 = 20$

9 $6 \times 8 = 48$

10 $5\overline{)50} = 10$

11 $3 \times 3 = 9$

12 $9\overline{)72} = 8$

13 $8 \times 10 = 80$

14 $7 \times 4 = 28$

15 $11\overline{)99} = 9$

16 $5 \times 9 = 45$

17 $12\overline{)60} = 5$

18 $6\overline{)36} = 6$

19 $3 \times 5 = 15$

20 $7\overline{)28} = 4$

Name: _____

Mixed Facts Timed Practice Sheet 5

Number Correct: _____

1	10×2	**2**	3×11	**3**	$3\overline{)15}$	**4**	$11\overline{)55}$
5	$12\overline{)24}$	**6**	7×5	**7**	9×1	**8**	9×7
9	8×4	**10**	11×7	**11**	$3\overline{)12}$	**12**	$4\overline{)20}$
13	$7\overline{)35}$	**14**	$9\overline{)36}$	**15**	12×10	**16**	8×9
17	9×9	**18**	$8\overline{)48}$	**19**	$6\overline{)60}$	**20**	$4\overline{)24}$

Mixed Facts Timed Practice Sheet 5

1 $10 \times 2 = 20$

2 $3 \times 11 = 33$

3 $3\overline{)15} = 5$

4 $11\overline{)55} = 5$

5 $12\overline{)24} = 2$

6 $7 \times 5 = 35$

7 $9 \times 1 = 9$

8 $9 \times 7 = 63$

9 $8 \times 4 = 32$

10 $11 \times 7 = 77$

11 $3\overline{)12} = 4$

12 $4\overline{)20} = 5$

13 $7\overline{)35} = 5$

14 $9\overline{)36} = 4$

15 $12 \times 10 = 120$

16 $8 \times 9 = 72$

17 $9 \times 9 = 81$

18 $8\overline{)48} = 6$

19 $6\overline{)60} = 10$

20 $4\overline{)24} = 6$

Name: _____

Mixed Facts Timed Practice Sheet 6

Number Correct: _____

1	3×9	**2**	$5\overline{)30}$	**3**	$4\overline{)28}$	**4**	10×8
5	8×7	**6**	7×3	**7**	$2\overline{)20}$	**8**	$5\overline{)25}$
9	$6\overline{)24}$	**10**	2×12	**11**	11×2	**12**	$12\overline{)48}$
13	$1\overline{)11}$	**14**	$11\overline{)44}$	**15**	9×9	**16**	5×3
17	$5\overline{)15}$	**18**	9×4	**19**	$6\overline{)48}$	**20**	3×10

Mixed Facts Timed Practice Sheet 6

1 $3 \times 9 = 27$

2 $5\overline{)30} = 6$

3 $4\overline{)28} = 7$

4 $10 \times 8 = 80$

5 $8 \times 7 = 56$

6 $7 \times 3 = 21$

7 $2\overline{)20} = 10$

8 $5\overline{)25} = 5$

9 $6\overline{)24} = 4$

10 $2 \times 12 = 24$

11 $11 \times 2 = 22$

12 $12\overline{)48} = 4$

13 $1\overline{)11} = 11$

14 $11\overline{)44} = 4$

15 $9 \times 9 = 81$

16 $5 \times 3 = 15$

17 $5\overline{)15} = 3$

18 $9 \times 4 = 36$

19 $6\overline{)48} = 8$

20 $3 \times 10 = 30$

Name: _____

Mixed Facts Timed Practice Sheet 7

Number Correct: _____

1	5×4	**2**	$4\overline{)32}$	**3**	8×3	**4**	$7\overline{)14}$
5	$3\overline{)30}$	**6**	$7\overline{)42}$	**7**	$6\overline{)30}$	**8**	6×7
9	6×4	**10**	$4\overline{)40}$	**11**	7×1	**12**	5×8
13	$9\overline{)81}$	**14**	10×12	**15**	$9\overline{)63}$	**16**	4×9
17	6×2	**18**	11×3	**19**	$11\overline{)22}$	**20**	$10\overline{)70}$

Mixed Facts Timed Practice Sheet 7

1 $5 \times 4 = 20$

2 $4\overline{)32} = 8$

3 $8 \times 3 = 24$

4 $7\overline{)14} = 2$

5 $3\overline{)30} = 10$

6 $7\overline{)42} = 6$

7 $6\overline{)30} = 5$

8 $6 \times 7 = 42$

9 $6 \times 4 = 24$

10 $4\overline{)40} = 10$

11 $7 \times 1 = 7$

12 $5 \times 8 = 40$

13 $9\overline{)81} = 9$

14 $10 \times 12 = 120$

15 $9\overline{)63} = 7$

16 $4 \times 9 = 36$

17 $6 \times 2 = 12$

18 $11 \times 3 = 33$

19 $11\overline{)22} = 2$

20 $10\overline{)70} = 7$

Name: _____

Mixed Facts Timed Practice Sheet 8

Number Correct: _____

1	10×4	**2**	$3\overline{)24}$	**3**	$5\overline{)45}$	**4**	9×3
5	6×11	**6**	6×5	**7**	$10\overline{)40}$	**8**	$1\overline{)5}$
9	$8\overline{)24}$	**10**	$3\overline{)36}$	**11**	11×9	**12**	$6\overline{)18}$
13	$12\overline{)72}$	**14**	9×8	**15**	$9\overline{)54}$	**16**	8×6
17	$7\overline{)14}$	**18**	6×7	**19**	7×12	**20**	5×5

Mixed Facts Timed Practice Sheet 8

1 $10 \times 4 = 40$

2 $3\overline{)24} = 8$

3 $5\overline{)45} = 9$

4 $9 \times 3 = 27$

5 $6 \times 11 = 66$

6 $6 \times 5 = 30$

7 $10\overline{)40} = 4$

8 $1\overline{)5} = 5$

9 $8\overline{)24} = 3$

10 $3\overline{)36} = 12$

11 $11 \times 9 = 99$

12 $6\overline{)18} = 3$

13 $12\overline{)72} = 6$

14 $9 \times 8 = 72$

15 $9\overline{)54} = 6$

16 $8 \times 6 = 48$

17 $7\overline{)14} = 2$

18 $6 \times 7 = 42$

19 $7 \times 12 = 84$

20 $5 \times 5 = 25$

Name: _____

Mixed Facts Timed Practice Sheet 9

Number Correct: _____

1 4×4	**2** $9\overline{)18}$	**3** 9×5	**4** $3\overline{)12}$
5 $9\overline{)27}$	**6** 11×11	**7** $5\overline{)60}$	**8** $6\overline{)12}$
9 $6\overline{)60}$	**10** 5×6	**11** 12×8	**12** 8×1
13 $7\overline{)49}$	**14** 6×2	**15** 11×10	**16** $7\overline{)77}$
17 7×10	**18** $11\overline{)121}$	**19** $8\overline{)16}$	**20** 4×12

Mixed Facts Timed Practice Sheet 9

1 $4 \times 4 = 16$

2 $18 \div 9 = 2$

3 $9 \times 5 = 45$

4 $12 \div 3 = 4$

5 $27 \div 9 = 3$

6 $11 \times 11 = 121$

7 $60 \div 5 = 12$

8 $12 \div 6 = 2$

9 $60 \div 6 = 10$

10 $5 \times 6 = 30$

11 $12 \times 8 = 96$

12 $8 \times 1 = 8$

13 $49 \div 7 = 7$

14 $6 \times 2 = 12$

15 $11 \times 10 = 110$

16 $77 \div 7 = 11$

17 $7 \times 10 = 70$

18 $121 \div 11 = 11$

19 $16 \div 8 = 2$

20 $4 \times 12 = 48$

Name: _____

Mixed Facts Timed Practice Sheet 10

Number Correct: _____

1 3×6	**2** 10×7	**3** $2\overline{)18}$	**4** $11\overline{)88}$
5 7×2	**6** $4\overline{)48}$	**7** 9×10	**8** $8\overline{)72}$
9 4×3	**10** $7\overline{)63}$	**11** 3×7	**12** 11×6
13 $3\overline{)9}$	**14** $12\overline{)96}$	**15** $1\overline{)10}$	**16** $5\overline{)15}$
17 $10\overline{)90}$	**18** 9×12	**19** 2×5	**20** 11×12

Mixed Facts Timed Practice Sheet 10

1 $3 \times 6 = 18$

2 $10 \times 7 = 70$

3 $2\overline{)18} = 9$

4 $11\overline{)88} = 8$

5 $7 \times 2 = 14$

6 $4\overline{)48} = 12$

7 $9 \times 10 = 90$

8 $8\overline{)72} = 9$

9 $4 \times 3 = 12$

10 $7\overline{)63} = 9$

11 $3 \times 7 = 21$

12 $11 \times 6 = 66$

13 $3\overline{)9} = 3$

14 $12\overline{)96} = 8$

15 $1\overline{)10} = 10$

16 $5\overline{)15} = 3$

17 $10\overline{)90} = 9$

18 $9 \times 12 = 108$

19 $2 \times 5 = 10$

20 $11 \times 12 = 132$

Name _____

Fact Practice Graph