

Expressions and Equations 1

Student Booklet

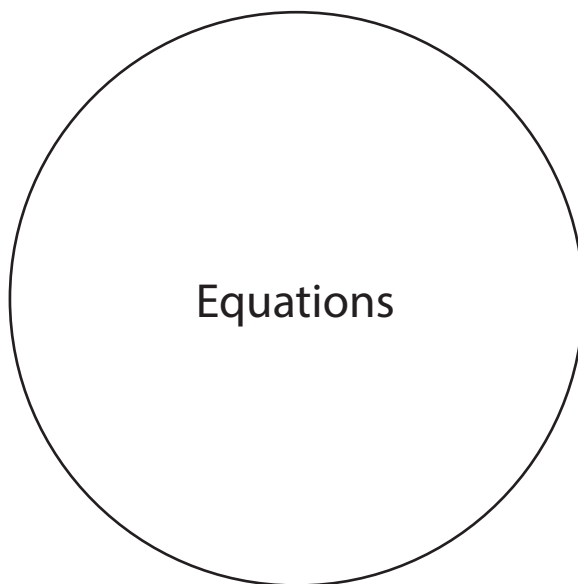
Name _____

Teacher _____

Period _____

Name: _____

Warming Up:



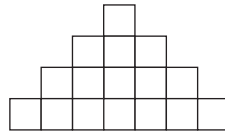
Name: _____

Learning to Solve:

Complete the staircase problem. Use your own words to describe the pattern.

Staircase problem:

1. This is a double staircase with 4 steps.



A. Using your square tiles, make a model of a double staircase with 5 steps.

B. How many square tiles are needed to build a double staircase with 5 steps? _____
Draw it.

C. Draw a model of a double staircase with 8 steps.

D. How many square tiles are needed to build a double staircase of 8 steps? _____

Name: _____

2. Fill out the table, indicating how many square tiles would be needed for the given amount of steps.

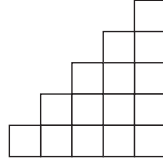
Number of Steps	Number of Square Tiles
1	
2	
3	
4	
5	
8	
10	
15	
20	
50	

3. Look at the table. Do you notice any patterns?

Name: _____

Practicing Together

A diagram of a single staircase with 5 steps uses 15 square tiles.



With your partner, answer the questions.

1. If the pattern continues in the same way, how many square tiles are needed to build a staircase with 6 steps?
2. How many square tiles are needed to build a staircase with 10 steps?
3. How many square tiles are needed to build a staircase with 20 steps?
4. How would you describe the pattern?

Name: _____

112, 339, 566, 793, _____

5. Identify the pattern. Find the next number using the same pattern.

- a. 1,000
- b. 1,020
- c. 920
- d. 987

Name: _____

Trying It on Your Own

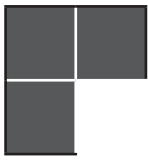


Figure 1

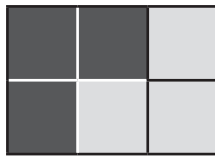


Figure 2



Figure 3

Use the figures above to answer questions 1–3.

1. Which table shows this relationship?

a.

Figure Number	Number of Squares
1	3
2	6
3	9
4	12
5	15

b.

Figure Number	Number of Squares
1	1
2	2
3	3
4	4
5	5

c.

Figure Number	Number of Squares
1	3
2	5
3	8
4	11
5	14

d.

Figure Number	Number of Squares
1	1
2	2×1
3	3×2
4	4×3
5	5×4

Name: _____

2. Without drawing a diagram, use the pattern you notice to find the number of squares needed for the seventh figure.

- a.** Seventh diagram has 71 squares
- b.** Seventh diagram has 280 squares
- c.** Seventh diagram has 19 squares
- d.** Seventh diagram has 70 squares

162, 54, 18, _____

3. Identify the pattern and select the number that goes in the blank.

- a.** Subtract each number by 108. The missing number is -90 .
- b.** Divide each number by 3. The missing number is 6.
- c.** Subtract each number by 36. The missing number is -18 .
- d.** Divide each number by 2. The missing number is 9.

Name: _____

14, 33, _____, 71

4. What is the missing number in the pattern?

- a. 19
- b. 52
- c. 71
- d. 99

Name: _____

Wrapping It Up

Laura wrote a number pattern:

3, 8, 13, 18, 23, 28, ...

How would you describe the pattern Laura used? Write it in your own words.

Name: _____

Warming Up:

Marco has 16 game tokens in 1 pocket. He has 5 more tokens in his other pocket than in his first pocket. How many tokens does he have in all?

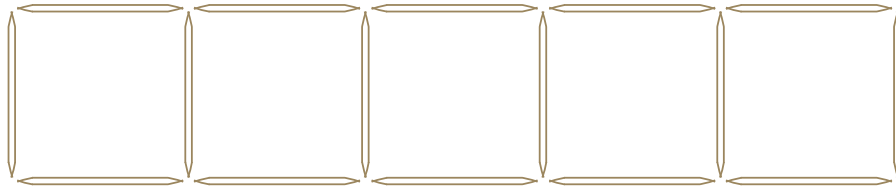
Name: _____

Learning to Solve:

Use your own words to write generalizations about the pattern.

Toothpick problem:

1. **Without counting** the individual toothpicks, find a way to determine how many toothpicks are needed to make this arrangement of 5 squares:



Number of toothpicks needed to make this arrangement of 5 squares: _____

2. Write a description of the pattern that shows how you determined your answer. The description should make sense and allow you to share your answer.

3. What is another way to determine the number of toothpicks needed? Describe your technique and illustrate it with a diagram.

A. How are the 2 methods similar?

B. How are the 2 methods different?

Name: _____

4. Without actually building it, find a way to determine how many toothpicks you would need to build a row of 16 squares. Describe the method or generalization you and your partner used.

Number of toothpicks needed to build a row of 10 squares: _____

Description of method or generalization:

5. Allison has built a row of squares on her desk. She knows how many total squares, but does not know how many toothpicks she used. Write directions for figuring out how many toothpicks she used.

Name: _____

Practicing Together

First, complete question 1. Then, solve the problem. Be sure your answer is correct and you can explain it. Finally, write your problem on a whiteboard and exchange it with another student pair for them to solve.

1. Make up a new problem by filling in the blanks.

_____ has _____ toothpicks. What is the largest number of squares in a row that could be built with this number?

2. Solve your problem.

3. Explain how you found your answer.

Name: _____

Wrapping It Up

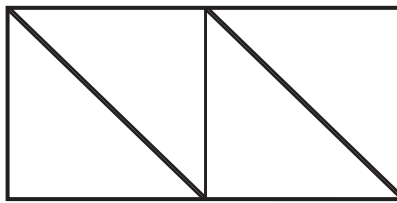
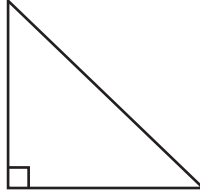
Using your own words, describe any patterns or generalizations you notice in the table.

Ethan's Walking Rate	
Time (seconds)	Distance (meters)
0	0
2	3
4	6
6	9
8	12
10	15

Name: _____

Warming Up:

1. Using the length of a side of the triangle as a unit, find the perimeter of the rectangle.



Perimeter: _____

2. Find the area of the rectangle, using the area of the triangle as 1 area unit.

Area: _____

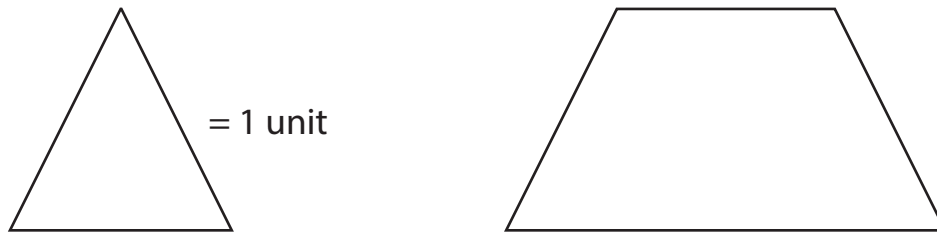
Name: _____

Learning to Solve:

Trapezoid train problem:

1. Using the length of 1 side of the triangle as 1 length unit, measure the perimeter of the trapezoid.

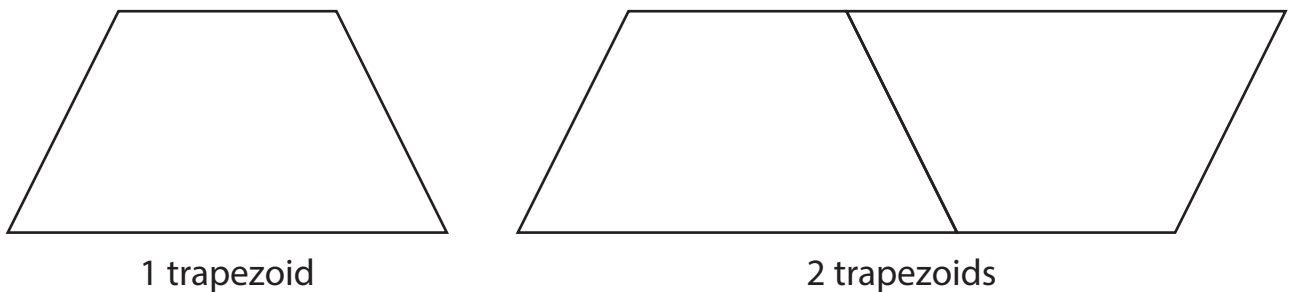
Perimeter of the trapezoid is _____ length units.



2. Measure the area of the trapezoid, using the triangle as 1 triangular area unit. Record the area of the trapezoid.

Area of the trapezoid is _____ triangular area units.

3. Make a trapezoid train by placing the trapezoids side by side. Record the information in the table.



Number of trapezoids	1	2	3	4	5	6	10	n
Perimeter of train								
Area of train								

Name: _____

4. Using the expression containing the variable for finding the perimeter and area of a trapezoid train, find the perimeter and area of a trapezoid train that is composed of 45 trapezoids.

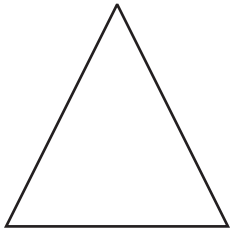
Perimeter of a 45-trapezoid train: _____ triangular length units

Area of a 45-trapezoid train: _____ triangular area units

Name: _____

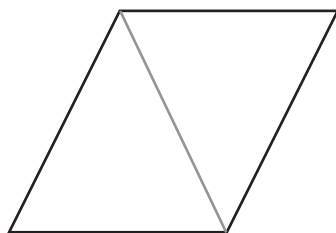
Trying It on Your Own

Use the diagram to answer the question.

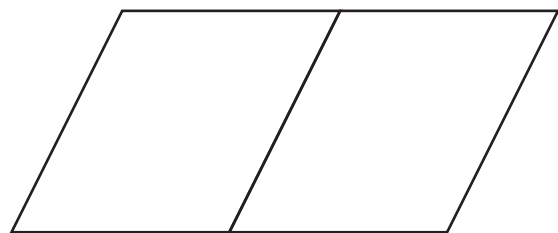


Use the triangle to find the area of the rhombuses in the rhombus train.

Area of the rhombus is 2 triangular area units.



1 rhombus



2 rhombuses

Number of rhombuses	1	2	3	4	n
Area of train (A)	2	4	6		

1. Which of the following describes the pattern of the area in words?

- a. The number of rhombuses plus 1.
- b. The number of rhombuses plus 2.
- c. The number of rhombuses times 2.
- d. The number of rhombuses times 4.

Name: _____

2. Using triangular units, what is the area (A) of a rhombus train when 4 rhombuses are used?

- a. $A = 10$ units
- b. $A = 4$ units
- c. $A = 8$ units
- d. $A = 8$ units

3. What expression can be used to find the area of a rhombus train?

- a. $n + 2$
- b. $n + 1$
- c. $2n$
- d. $2n + 2$

Name: _____

4. Using the expression selected in number 3 for finding area, what is the area of a 20-rhombus train?
- a. 42 triangular area units
 - b. 40 triangular area units
 - c. 22 triangular area units
 - d. 20 triangular area units

Name: _____

Wrapping It Up

Gwen wrote " $w + 10$ " on the board. What do you think she meant by this expression.

Name: _____

Warming Up:

Joni multiplied a number by 5, then divided by 2. The answer she got was 15. What number did she start with?

Name: _____

Learning to Solve:**Order of Operations**

1. Simplify expressions within grouping symbols.
2. Compute all exponents or powers.
3. Compute multiplication and division.
4. Compute addition and subtraction.

Evaluate each expression.

1. $3^2 + 4 \times 5$

The value of the expression is _____.

2. $17 - 16 \div 2 \times 2$

The value of the expression is _____.


3. $5 \times 2^3 + 6 - 10$


The value of the expression is _____.


Name: _____

Practicing Together

Each operational sign in the following expressions has a cloud over it. Number the clouds in the order that the operation should occur. The first problem has been done for you.

 2 1 4 3 5
1. $36 \div 6^2 + 4 \times 2 + 8$


2. $8 + 3 \times 4 + 10 \div 2 - 2$


3. $20 \div (4 + 6) + 3^2 \times 4$

Simplify each expression using the order of operations. Show how you used the order of operations.

4. $(8 - 5) \times 2 + 7 \times 3$

5. $20 - 12 \div 4 + 10$

Name: _____

6. Choose the answer that has correctly used the order of operations.

$$8 - 2(6 - 3)$$

- a. 18
- b. 1
- c. 0
- d. 2

Name: _____

Trying It on Your Own

Choose the answer that has correctly used the order of operations.

1. $4 + 10 - (5 + 7)$

a. 16

b. 2

c. 15

d. 26

2. $8 \times (8 - 8) \div 9$

a. 6.22

b. 0.59

c. 9

d. 0

Name: _____

3. $2^3 + 4 \times 5$

- a. 28
- b. 26
- c. 70
- d. 50

4. Amy had to simplify the expression $1 + 4 \div (9 - 5)$. She started the problem, but then got stuck explaining to her teacher that she did not know how to find $5 \div 4$. What did she do wrong?

- a. Amy should divided 9 by 4 because you always divide the larger number by the smaller number.
- b. Amy did not; she just needs to complete division with a decimal.
- c. Amy should divide 4 by 4 first before she adds.
- d. Amy added correctly— $1 + 4$ is 5—but then she should divide 4 by 9 and then subtract 5.

Name: _____

Wrapping It Up

Look at the problem Norah did. Do you agree or disagree with her work? Justify your answer.

$$4 + 8 \div 2 - 1$$

$$12 \div 1$$

Name: _____

Warming Up:**Order of Operations**

1. _____ : Simplify expressions within grouping symbols.
2. _____ : Compute all exponents or powers.
3. _____ : Compute all multiplication and division.
4. _____ : Compute all addition and subtraction.

Name: _____

Practicing Together

Place grouping symbols in each equation to make the statement true.

1. $2 + 3 \times 4 = 20$

2. $3 \times 8 - 3 = 15$

3. $4 \div 4 + 3 \times 7 = 22$

4. Using order of operations, write 2 different equations that result in an answer when evaluated.

5. Which expression is evaluated correctly?

a. $3(4 + 3) - 1 = 14$

b. $3(4 - 3) - 1 = 2$

c. $5^2 + 3 - 5 = 8$

d. $5^2 - 5 - 1 = 4$

Name: _____

Trying It on Your Own

Choose the answer that shows the expressions evaluated correctly.

1. $9^2 + (6 + 6)$

a. 30

b. 54

c. 93

d. 117

2. $10 - 3 + 4 \div 2$

a. 5.5

b. 9

c. 4.5

d. 6

Name: _____

Choose the expression with the correctly placed grouping symbols to make the statement true.

3. $2 \times 3 \div 2 + 4 = 1$

a. $(2 \times 3) \div 2 + 4$

b. $2 \times (3 \div 2) + 4$

c. $2 \times 3 \div 2 + 4$

d. $2 \times 3 \div (2 + 4)$

4. Brian was told to simplify the expression $8 - 3 \times 2$. He said the answer was 10. Is he correct? Why or why not?

a. He is correct. He subtracted $8 - 3$ and then multiplied 5×2 . The answer is 10.

b. He is incorrect. The answer is 2. He should have multiplied 3×2 first and then subtracted $8 - 6$.

c. He is correct. The answer is 10 because he multiplied 8×2 and then subtracted 3×2 .

d. He is incorrect. You cannot solve this problem because there are no parentheses to tell you what to do first.

Name: _____

Wrapping It Up

Use at least 3 numbers and at least 2 computations to write an expression that results in an answer of 24.

Name: _____

Warming Up

Cross It Out!

Goal: Use 3 numbers to make the numbers from 1–10.

Record the numbers rolled on the dice. You must use all 3 numbers from the roll of the dice. You may not use any other numbers. You can use any operation, such as addition, subtraction, multiplication, and division.

Record the equations that resulted in a number from 1–10. When you find a number from 1–10, cross it off the board. Try to cross out as many numbers as you can.

When you think you cannot find any more numbers, record the sum of the numbers that are remaining on the board and not crossed off. For example, if you did not cross off 1, 3, and 4, your score would $1 + 3 + 4$, or 8.

You will play as many rounds as there is time. The pair with the lowest score after the game ends is the winner.

Name: _____

Learning to Solve:

$$\square \times \bigcirc = 20 \text{ is the same as}$$

$$a \times b = 20$$

or

$$m(n) = 20$$

or

$$x \cdot y = 20$$

Pick an equation and find the values of the factors that will make the statement true.

Substitute the value 4 for the variable in each problem and then evaluate each expression.

1. $s + 10$

2. $8(c)$

3. $\frac{16}{m}$

4. $9z \div 2 - 15$

5. $6(h + 2) - 2 + 10$

6. $(b + b) \div b$

Name: _____

Practicing Together

- Both you and your partner will choose a unique number between 5 and 10 to represent the variable x .
- Write your number and your partner's number at the top of the appropriate column.
- Evaluate each expression, using the number you chose and the number your partner chose to represent the variable x , and then fill in the table.

	The number you chose: $x =$	The number your partner chose: $x =$
$x + 2$		
$x - 2$		
$x \div 2$		
$(x + 2)(x - 2)$		
$3x$		
$3x - 1$		

- Emma evaluated an expression and got a result of 37. If the value of the variable is 7, which of the expressions could Emma have evaluated?
 - $5x + 2$
 - $3x$
 - $3x + 7$
 - $3 + 7x$

Name: _____

Trying It on Your Own

1. Grant told the teacher that he substituted 12 for the value of u . The result was 82.

Which expression did Grant evaluate?

a. $u + 6 + 10$

b. $6 + 10u$

c. $6u + 10$

d. $10u - 6$

2. Kira evaluated the expression $2(n - 5) + 2$ and said that the answer was 10. Which value of n did she use?

a. 8

b. 10

c. 5

d. 9

Name: _____

Choose the correct answer when each expression is evaluated by substituting the value 10 for each variable.

3. $x + 3(x + 20)$

- a. 60
- b. 90
- c. 100
- d. 310

4. $7m + 15 - 5m$

- a. 170
- b. 17
- c. 35
- d. 15

Name: _____

Wrapping It Up

Greg evaluated the expression below and said the value of the expression was 19. What value did he use for the variable?

$$5f + 2 - 8$$

What is the value of f ? _____

Name: _____

Warming Up**Cross It Out!*****Directions:***

We are going to play a game called Cross It Out! The goal is to use 3 numbers to make the numbers from 1–10.

To play, roll 3 dice to get 3 numbers. Record the numbers rolled on the dice. You must use all 3 numbers from the roll of the dice. You may not use any other numbers. You can use any operation, such as addition, subtraction, multiplication, and division, that you want.

Let's try a practice round. Say I rolled 2, 3, and 6. I can make 1 by adding $2 + 3$, then subtracting from 6. I will record my equation to show what I did by writing $6 - (2 + 3) = 1$. On my game board, I would cross 1 out. I can make 5 by subtracting $6 - 3$, then adding 2. I would record $6 - 3 + 2 = 5$. You will keep trying to cross out all the numbers from 1 to 10.

When you think you cannot find any more numbers, record the sum of the numbers that are remaining on the board and not crossed off. For example, if you did not cross off 1, 3, and 4, your score would $1 + 3 + 4$, or 8.

You will play as many rounds as there is time. The pair with the lowest score after the game ends is the winner.

Name: _____

Practicing TogetherEvaluate each expression and write an = or a \neq sign in the blank.

1. $24(3)$ $9 + 1 \cdot 67$

2. $8 + 7 - 6$ 3×3

3. $15 \div 5 \cdot 4$ $8 \cdot 3 \cdot 2$

4. Write 2 different numerical expressions that are equal.

Name: _____

Trying It on Your Own

Choose an expression that represents the same value as the given expression.

1. $4 \div (8 - 6) \div 2 =$

- a. $8 \div 4 - 6 \div 2$
- b. $7 \div (10 + 4) - 6$
- c. $1 \times 1 + 3$
- d. $7 \div (10 + 3 - 6)$

2. $5 + 4 - 3 + 9 =$

- a. $1 \times 2(4 - 2)$
- b. $9 \div 9(8 + 7)$
- c. $10 \div 5 \times 3 \times 3$
- d. $(10 - (10 - 8)) \times 2$

Name: _____

3. $81 \div 9 - (8 - 4) =$

a. $(4 \div 4 + 1) + 3$

b. $8 \div 1 + 1$

c. $(3 + 9) \div 4 + 2$

d. $(10 \times 2) - 6 + 5$

4. $9 + (3 - 2) \times 4 =$

a. 4

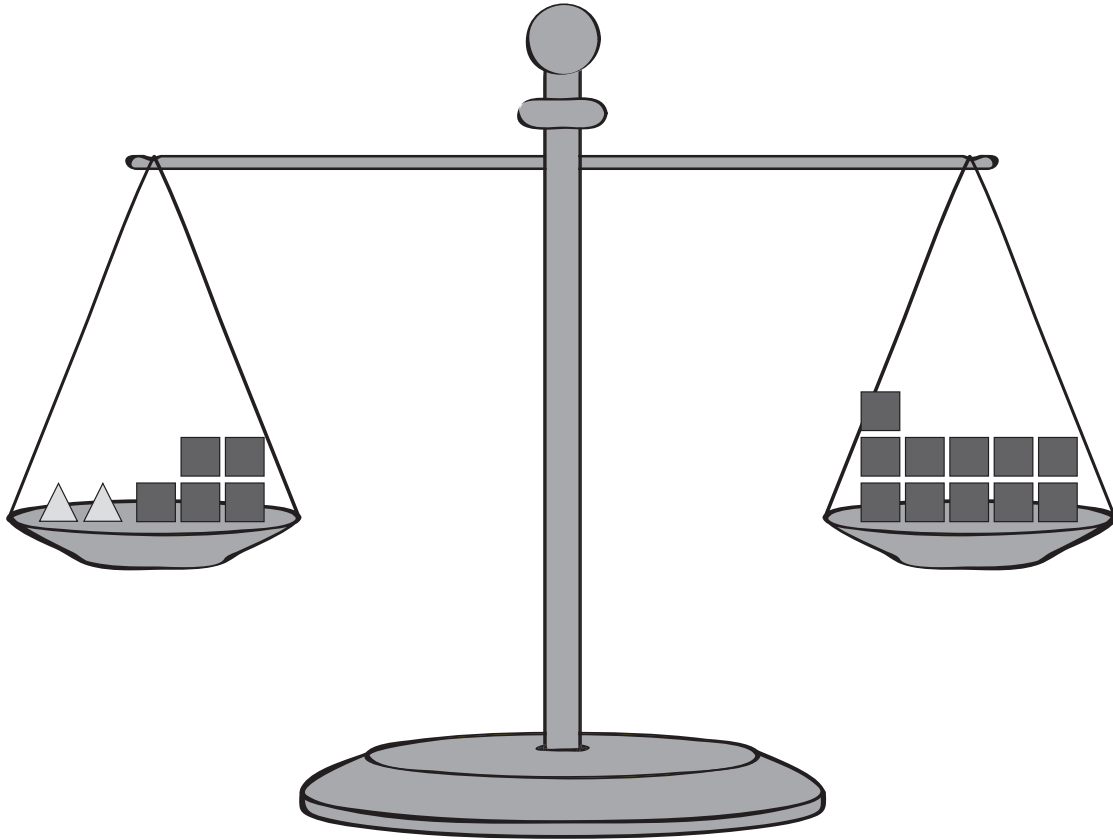
b. 13

c. 37

d. 40

Name: _____

Warming Up:



Name: _____

Practicing Together

1. With your partner, sort the cards into fact families. Each fact family should represent related equations.

2. Which of the following is a fact family?

a. $3 + x = 8$, $x + 3 = 8$, $8 \cdot 3 = x$, $3 \cdot 8 = x$

b. $5 + k = 12$, $7 + k = 12$, $12 - 7 = k$, $12 - 5 = k$

c. $12a = 24$, $24 = 12a$, $12 \div 24 = a$, $12 \div a = 24$

d. $36 \div 9 = x$, $36 \div x = 9$, $9x = 36$, $x(9) = 36$

Name: _____

Trying It on Your OwnFind the related equation and the correct solution for x .

1. $89 = 9 + x$

a. $89 - 9 = x$

$x = 80$

b. $89 + 9 = x$

$x = 98$

c. $\frac{89}{9} = x$

$x = 80$

d. $89(9) = x$

$x = 801$

2. $54 \div x = 3$

a. $54 - 3 = x$

$x = 51$

b. $54(3) = x$

$x = 162$

c. $54 \div 3 = x$

$x = 18$

d. $54 + 3 = x$

$x = 18$

Name: _____

3. $x(32) = 128$

a. $128 - 32 = x$

$x = 96$

b. $128 \div 32 = x$

$x = 4$

c. $128(32) = x$

$x = 4,096$

d. $128 + 32 = x$

$x = 160$

4. $x - 287 = 532$

a. $532 - 287 = x$

$x = 819$

b. $\frac{532}{287} = x$

$x = 1.85$

c. $532 + 287 = x$

$x = 819$

d. $532(287) = x$

$x = 152,684$

Name: _____

Learning to Solve:

Write the algebraic expression for each statement.

1. The product of 6 and n decreased by 4

2. t cubed increased by 3

Write the algebraic expression for each word problem.

3. Jeffery picked some apples. Brian picked 32 fewer apples than Jeffery. Write the algebraic expression that represents this problem.

4. Allen collected 73 shells along the coast. Hazel also collected shells on the coast. Allen and Hazel put their shells together and had a total of 219 shells from their vacation. Write the algebraic expression that represents this problem.

Name: _____

Practicing Together

Match each statement card with the appropriate equation card. In each statement, n represents some number.

$$36 = n \div 12$$

36 is the quotient of a number and 12

$$36 = n - 12$$

12 is 9 less than a number

$$36 = 12 - n$$

36 is 12 less than a number

$$14 = 7n$$

twice the sum of a number and 7 is 14

$$12 = n - 9$$

14 is the product of 7 and a number

$$2(n + 7) = 14$$

36 is some number less than 12

Name: _____

Trying It on Your Own

1. Kerry said, "What expression represents n decreased by the product of 7 and 4?" Which expression answers Kerry's question?

- a. 7×4
- b. $7n - 4$
- c. $4 - 7n$
- d. $n - 7 \times 4$

2. Which expression represents the quotient of b and 7?

- a. $b \div 7$
- b. $7b$
- c. $7 - b$
- d. $b + 7$

Name: _____

3. Marcus has some baseball cards. Pete has 5 more cards than Marcus. The number of cards Marcus has is represented by h . Which expression represents the number of cards Pete has?

- a. $h - 5$
- b. $h + 5$
- c. $5h$
- d. $5 \div h$

4. Marika found some pencils in her backpack. She already had t pencils. Now she has twice as many. Which expression represents the number of pencils Marika has now?

- a. $t + 2$
- b. $t - 2$
- c. $2t$
- d. $2 \div t$

Name: _____

Wrapping It Up

Write an algebraic expression to represent the difference of 8 and w .

Name: _____

Warming Up

Yesterday, I brought 4 granola bars to school for a snack. A teacher gave me some more granola bars. What expression could I write to show this relationship?

Name: _____

Learning to Solve:

Write an equation for word problem 1 and solve word problem 2.

1. Evelyn runs 4 miles every day. How many days until she has run 48 miles?

Equation: _____

2. Brandon bought 6 boxes of cookies. He now has 72 cookies in all. Select an equation that when solved will tell how many cookies were in each box. Let c = the number of cookies in each box.

a. $c + 6 = 72$

b. $6c = 72$

c. $6 + 72 = c$

d. $c = 72 - 6$

Why did you choose that equation?

Name: _____

Practicing Together

Write an equation to represent the problem. Solve the problem.

1. Sara shared some pretzels with 2 friends. Each person got 12 pretzels. How many pretzels did Sara have to share?

What is your variable? _____

What does the variable represent? _____

Write your equation and solve it. _____

2. Miguel had some chips. He gave Rhyllie 15 chips. He had 19 chips left. How many chips did Miguel have to start with?

What is your variable? _____

What does the variable represent? _____

Write your equation and solve it. _____

Name: _____

3. Montez had 27 tiny erasers. His friend gave him some more erasers. He now has 48. How many erasers did his friend give him?

What is your variable? _____

What does the variable represent? _____

Write your equation and solve it. _____

4. Makana had 225 songs in his playlist. He used a gift certificate to buy more songs. He now has 257. Decide which equation and solution process would tell how many songs he bought with his gift certificate.

k = number of songs he bought.

- a.** $225 - k = 257$. To solve, add $225 + 257$.
- b.** $k - 257 = 225$. To solve, add 225 and 257.
- c.** $257 - 225 = k$. To solve, subtract the 2 amounts.
- d.** $225 + k = 257$. To solve, add $225 + 257$.

Name: _____

Trying It on Your Own

Answer each question.

1. Kennedy had 218 songs downloaded. She erased some older songs. She now has 187 songs left. Choose the equation and the solution that tells the number of songs she erased.

- a.** $218 - s = 187$. Not enough information to solve for s .
- b.** $218 - s = 187$. Add 218 and 187 to find that $s = 407$.
- c.** $218 + 187 = s$. $s = 407$.
- d.** $218 - s = 187$. Use fact family to subtract 187 from 218 to find that $s = 31$.

2. Grant had to write a word problem to match the algebraic equation $s = (19 + t)3$. Which word problem could he have written?

- a.** Bubba wanted to buy 3 books. The cost of a book is \$19 plus sales tax. What is the cost of 3 books?
- b.** Bubba wanted to buy 3 books. Each book cost \$3 plus \$19 for sales tax. What is the cost of 3 books?
- c.** Bubba wanted to buy 19 books. Each book was \$3. What is the cost of 19 books?
- d.** Bubba wanted to buy 21 books. Each book cost t . What is the cost of the books?

Name: _____

3. The length of a rope (l) in feet is 4 more than a number, f . Write an expression to find the length of the rope in inches (hint: 1 foot = 12 inches). Reagan wrote " $l = (f + 4)12$." Did she write the correct algebraic equation?

- a.** Yes, because she used the correct numbers.
- b.** No, because the word problem did not have the number 12 in it.
- c.** Yes, because you have to first find out how long the rope is in feet and then multiply by 12 to find total inches.
- d.** No, because she should have multiplied 4 by f because it is 4 more feet than that number.

4. The perimeter of a square is 32 inches. How long is each side? Choose the equation that was correctly used to find the length of each side.

- a.** $p = s + s + s + s$. To solve, add $32 + 32 + 32 + 32$, $p = 128$ inches.
- b.** $32 = s + s + s + s$. To solve, divide 32 by 4, so each side is 8 inches.
- c.** $p = s(s)$. To solve, multiply 32 by 32, so $p = 1,024$ inches.
- d.** $32 = p$

Name: _____

Wrapping It Up

Work in pairs to play Make It a Rectangle. In this game, you will match the edges of the cards so that an algebraic expression and a word description match up. When you finish, you should have a rectangle that measures 3 cards by 4 cards.

Name: _____

Warming Up

Using n as the variable, write an algebraic expression for each word phrase. Find the path from the start to the end and draw a line through the word phrases that involve multiplication.

START

1 less than a number

6 times n plus 3

5 times a number

4 less than y

w more than 32

2 times n minus 4 plus 14

9 divided by a number

10 times a number plus 40

3 less than 30 multiplied by 5

END

Name: _____

Learning to Solve:

1. $k + 8$

What number added to 8 is equal to 17?

$k = \underline{\hspace{2cm}}$

2. $t - 4 = 7$

$t = \underline{\hspace{2cm}}$

3. $z \div 5 = 3$

$z = \underline{\hspace{2cm}}$

4. $6r = 42$

$r = \underline{\hspace{2cm}}$

5. $2 + 4g = 22$

$2 + \boxed{\hspace{1cm}} = 22$

$g = \underline{\hspace{2cm}}$

Name: _____

Practicing Together

Solve the equations. Describe in words how you found the value of the variable.

1. $3y = 42$

$y =$ _____

Describe how you found the value of y .

2. $3y + 3 = 45$

$y =$ _____

Describe how you found the value of y .

3. $14 + 2y = 30$

$y =$ _____

Describe how you found the value of y .

Name: _____

4. Solve by inspection or cover up method. $2(k + 3) = 18$

a. $k = 9$

b. $k = 15$

c. $k = 6$

d. $k = 16$

Name: _____

Trying It on Your Own

Solve each equation by inspection alone or by cover and inspection.

1. $2j + 7 = 11$

a. $j = 4$

b. $j = 2$

c. $j = 9$

d. $j = 22$

2. $5d - 6 = 24$

a. $d = 6$

b. $d = 30$

c. $d = 18$

d. $d = 11$

Name: _____

3. $8w = 56$

a. $w = 48$

b. $w = 448$

c. $w = 7$

d. $w = 6$

4. $2s - 4 = 12$

a. $s = 8$

b. $s = 16$

c. $s = 18$

d. $s = 2$

Name: _____

Warming Up:

Order of operations:

1. G: _____

2. E: _____

3. M: _____

4. S: _____

Evaluate each expression, using the order of operations.

7. $(15 + 38 - 3) \div 2$

8. $5 \cdot 11(8 - 3)$

9. $(8 + 4) + 25(3)$

Name: _____

Learning to Solve

1. $2h - 8 = 84$

h	$2h - 8$	
10	12	84
30	52	84
		84
		84
		84
		84
		84
		84
		84
		84

The solution to the equation is $h =$ _____.

2. $2x + 3 = 27$

x	$2x + 3$	
		27
		27
		27
		27
		27
		27
		27
		27
		27
		27

The solution to the equation is $x =$ _____.

Name: _____

Practicing Together

Use the tables to solve the equations.

1. $3y + 1 = 34$

y	$3y + 1$	34
		34
		34
		34
		34
		34
		34
		34
		34
		34
		34

The solution to the equation is $y =$ _____.

2. $4w - 3 = 33$

w	$4w + 3$	33
		33
		33
		33
		33
		33
		33
		33
		33
		33
		33

The solution to the equation is $w =$ _____.

Name: _____

3. $60 = 100 - 5y$

y	$100 - 5y$	60
		60
		60
		60
		60
		60
		60
		60
		60
		60
		60

The solution to the equation is $y =$ _____.

4. $15 = 0.5y$

y	$0.5y$	15
		15
		15
		15
		15
		15
		15
		15
		15
		15
		15

The solution to the equation is $y =$ _____.

Name: _____

Trying It on Your Own

1. $28 = 0.4x$. Find the solution to the equation.

- a. $x = 7$
- b. $x = 27.6$
- c. $x = -70$
- d. $x = 70$

2. $35 = 7x$. Find the solution to the equation.

- a. $x = 28$
- b. $x = 5$
- c. $x = -5$
- d. $x = 42$

Name: _____

3. $8a(4) = 192$. Find the solution to the equation.

- a. $a = 160$
- b. $a = 384$
- c. $a = 6,144$
- d. $a = 6$

4. The teacher gave this problem to the class to solve: $66 = 30 + 9y$. James said that the answer was $y = 36$. Lei disagreed, saying that $y = 4$. Who is right?

- a. James is right because the $30 + 36 = 66$, so y has to equal 36.
- b. Lei is right because $9y = 36$, and $36 - 66 = 30$.
- c. Lei is right because $9y = 36$, and $36 + 30 = 66$.
- d. They are both wrong. The correct answer should be $y = -4$ because you first subtract 9 from both sides, and $(-9)(-4) = 36$, and $66 - 36 = 30$.

Name: _____

Warming Up:

1. $y + 14 = 125$

Fact Family:

$y = \underline{\hspace{2cm}}$

2. $136 \div b = 68$

Fact Family:

$b = \underline{\hspace{2cm}}$

3. $384 - m = 104$

Fact Family:

$m = \underline{\hspace{2cm}}$

4. $85h = 425$

Fact Family:

$h = \underline{\hspace{2cm}}$

Name: _____

Learning to Solve

Tori earns \$8 per hour pet sitting. If Tori works 12 hours pet sitting her neighbor's dogs, how much money would she make?

What are we trying to find? Solve the problem.

Juan bought 54 stamps at the post office on 34th Street. After he used some stamps, he had 36 stamps remaining. How many stamps did he use?

What are we trying to find? Solve the problem.

Name: _____

Practicing Together

1. Sylvia rode the Ferris wheel 8 times, which was 4 times as many times as she rode the bumper cars at the state fair. How many times did Sylvia ride the bumper cars at the fair?

2. Maria bought \$50 worth of golf products last month, which was \$12 more than Jesse had spent. How much did Jesse spend on golf products?

Name: _____

Trying It on Your Own

Choose the correct solution for each problem.

1. Marcus has 124 baseball rookie cards, which is twice as many cards as Stanley. How many cards does Stanley have?

- a. 62 cards
- b. 122 cards
- c. 248 cards
- d. 126 cards

2. Owen's baseball team raised \$3,240. This amount is \$20 less than 2 times as much as the money his sister's softball team raised. How much money did Owen's sister's team raise?

- a. \$6,480
- b. \$1,610
- c. \$1,630
- d. \$1,160

Name: _____

3. Sarah wrote 9 stories in the month of June, which is 6 less than three times the number of stories her friend, Janice, wrote. How many stories did Janice write? Choose the equation that can be used to solve for the number of stories Janice wrote.

a. $3x + 9 = 6$

b. $9x + 6 = 3$

c. $3x - 6 = 9$

d. $9x - 3 = 6$

4. Paul played his favorite video game 12 times on Sunday, which is 2 more than twice the number of times he played the game on Saturday. Choose the equation that can be used to solve for the number of times Paul played the game on Saturday.

a. $2x + 12 = 2$

b. $2x + 5 = 12$

c. $2x - 2 = 12$

d. $2x + 2 = 12$

Name: _____

Wrapping It Up

Directions:

You will work in pairs to play Make It a Rectangle. In this game, you will match the edges of the cards so that an algebraic expression and a word description match up. When you finish, you should have a rectangle that measures 3 cards by 4 cards.

Name: _____

Warming Up:

Pair with a partner.

Each pair is given a set of cards. The cards labeled with an E are expression cards. The cards labeled with a W are the word cards. In your pair, you are to match the word statement that goes with the expression.

Name: _____

Learning to Solve

Translate each sentence into an expression with a variable.

1. James earns \$20 each time he mows a lawn. If he mows 6 lawns over a weekend, how much money would he make?

2. Jenna scored 12 runs for her softball team in the first 6 games of the season. During the next 2 games, she did not score. In her next game, she scored 6 runs. How many runs did Jenna score per game?

Name: _____

Practicing Together

Solve each word problem. Write an equation that could be used to solve the problem.

Michelle had \$132 in her savings account. She withdrew some money and now has \$80 left in her account. How much money did she withdraw?

1. Write an equation that could be used to solve the problem. Be sure to show what your variable represents.

2. Show how you solved the equation.

3. How much money did she withdraw?

Peter exercises a certain number of minutes 3 days per week. In 2 weeks, he has exercised a total of 1,200 minutes. How many minutes does he exercise each day?

4. Write an equation that could be used to solve this problem. Be sure to show what your variable represents.

5. Show how you solved the equation.

6. How many minutes does he exercise each day?

Name: _____

7. Natalie bought 3 pants that each cost the same amount. She also bought 2 pairs of shoes that each cost \$30. How much did she spend at the mall? Select an expression that represents the amount of money she spent.

a. $d + d + d + 30 + 30$

b. $60 + d$

c. $d(3) + 30$

d. $5 \cdot d$

8. Randy bought 19 new books to add to his collection. How many total books does he own now? Select the expression that shows how many total books he has.

a. $19 + 19$

b. $19 - k$

c. $19 + k$

d. $19 \cdot k$

Name: _____

Trying It on Your Own

1. At the deli, Julie bought some roast beef for \$3.72 per pound. She is planning a party for 12 friends and needs to buy 6 pounds. How much will 6 pounds of roast beef cost?

- a. \$0.62
- b. \$22.32
- c. \$44.64
- d. \$34.32

2. Sean needs to divide his football card collection equally among 9 friends. If he has 234 cards, how many cards will he give each friend?

- a. 2,106 cards
- b. 225 cards
- c. 16 cards
- d. 26 cards

Name: _____

3. There is a special sale online to download a pop star's newest songs. Sally downloaded 4 songs and spent \$1.28. How much was each song? Choose the best equation to represent the problem.

- a.** $4x = \$1.28$
- b.** $\$1.28 \div 4 = x$
- c.** Both a and b could be used.
- d.** Neither a nor b is the correct equation.

4. Kara bought 3 pounds of apples. Each pound cost the same amount. She spent \$7.47. Which equation could be used to find the cost of 1 pound of apples?

- a.** $3(\$7.47) = x$
- b.** $\$7.47 - 3 = x$
- c.** $\$7.47 \div 3 = x$
- d.** $\$7.47 + 3 = x$

Name: _____

Warming Up

The 249 students who listed “sports” as their favorite thing to do outside of school were 12 less than 3 times the number of students who listed “watching TV” as their favorite pastime. Write an equation and solve for the variable. Be sure to identify what your variable represents.

Equation: _____

Name: _____

Practicing Together

Work with a partner to solve.

1. Jaci sold gift wrap as part of his school's fundraising for a band trip. He sold 4 rolls of print gift wrap at \$6 per roll. He sold 6 rolls of holiday gift wrap at \$5 per roll. How much total money did he collect from selling the gift wrap? Write an equation that shows your solution.
2. Sara sold gift wrap, too. She sold 8 rolls of print gift wrap at \$6 per roll. She also sold k rolls of holiday gift wrap at \$5 per roll. She collected a total of \$118. How many rolls of holiday gift wrap did she sell? Use an equation to solve the problem.
3. Juan sold 6 rolls of print gift wrap. He sold 4 less than twice as many rolls of holiday gift wrap. How many rolls of gift wrap did he sell altogether? Use an equation to solve the problem. Identify your variable.
4. Erin sold holiday wrap and collected \$150. Casey collected \$10 more than half the amount Erin collected. How much did they collect altogether? Use an equation to solve the problem. Be sure to identify the variable.

Name: _____

Trying It on Your Own

Use the following information to answer each question.

The Math Camp likes to make a snack mix for each camper. The following ingredients go into 1 serving of the snack mix:

- 2 cups of chocolate candies
- 1 cup of almonds
- 1 cup of peanuts
- 3 cups of raisins

The cost of each serving of snack mix is \$3.25.

1. How many cups of chocolate candies are needed for 6 servings of snack mix?

- a. 4 cups
- b. 6 cups
- c. 8 cups
- d. 12 cups

2. How many cups of raisins are needed to make 10 servings of snack mix?

- a. 10 cups
- b. 20 cups
- c. 30 cups
- d. 13 cups

Name: _____

3. Let h be the number of campers. What expression could be used to determine the number of peanuts and almonds needed to make the snack mix?

- a. $h + 2$
- b. $h(1) + h(1)$
- c. $h + h + 1$
- d. $h + 1 + h(1)$

4. The last day of the camp was busy. A total of 78 cups of raisins were used to make the snack mix. How many cups of chocolate candies, almonds, and peanuts were used? How could you solve?

- a. Find out how many servings of raisins were in the snack mix by dividing 78 by 3, so $78 \div 3 = 26$. Then, multiply the other ingredients by the quotient, so $26(2) + 26(1) + 26(1)$.
- b. Multiply 78 times the amount of each ingredient. Then, add all the products, so $78(2) + 78(1) + 78(1)$.
- c. Divide 78 by each ingredient and then add. $78 \div 2 + 78 \div 1 + 78 \div 1 + 78 \div 3$.
- d. First, add all of the amounts of each ingredient. Then, multiply the sum by 78.

Appendices

EXPRESSIONS AND EQUATIONS 1

Name: _____

Warming Up:

Find the unknown or missing value that makes the equation true.

1. $11.1 + \bigcirc = 14.1$

2. $\frac{7}{2} - \frac{1}{2} = \underline{\hspace{2cm}}$

3. $\underline{\hspace{2cm}} \times 2 = 8.6$

4. $30 + \square = 34$

5. $n + 11.1 = 14.1$

$n = \underline{\hspace{2cm}}$

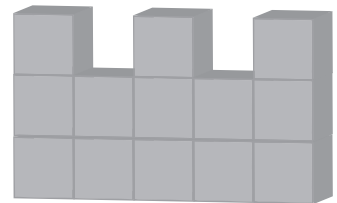
Name: _____

Learning to Solve:

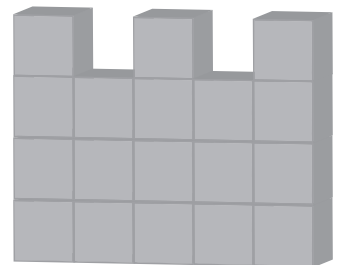
1. Write the different ways to represent 3 times 4.
2. Write the different ways to represent 15 divided by 5.

Cube problem:

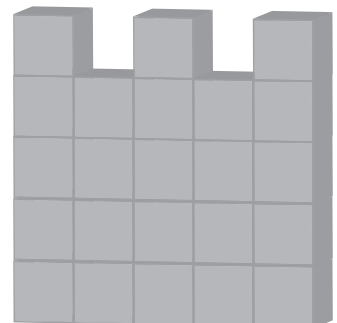
The walls of the entrance to a new amusement park look like towers. The walls with towers that are 3 stories tall take 13 concrete blocks to build.



The walls with towers that are 4 stories tall take 18 concrete blocks to build.



The walls with towers that are 5 stories tall take 23 concrete blocks to build.



Name: _____

Using the diagrams on the previous page, answer the following questions.

A. How many concrete blocks are needed to build a wall for the amusement park with towers that are 10 stories tall? _____

Describe or show the method you used to determine your answer.

B. How many concrete blocks are needed to build a wall for the amusement park with towers that are 15 stories tall? _____

C. How many concrete blocks are needed to build a wall for the amusement park with towers that are 100 stories tall? _____

D. Write a sentence that would tell someone outside of class how to find the number of concrete blocks needed to build a wall with towers of any number of stories.

h represents: _____

An expression to represent my sentence is: _____

Name: _____

Complete the table.

Number of Stories	Concrete Blocks Needed
3	
4	
5	
10	
15	
100	
110	

Name: _____

Practicing Together

The construction foreman has been given 148 concrete blocks to build the wall for the amusement park. How many stories tall will the wall be?

1. Solve the problem.
2. Using your own words, explain how you found your answer.

Translate each sentence into an expression, using a variable.

3. Laci received a \$250 donation and will also earn \$5 for each mile she walks in the walkathon. Write an expression that represents the total amount of money she will earn.
4. The ingredients for multiple batches of orange juice are shown in the table. What expression represents the amount of concentrate and water needed to make an unknown number of batches of orange juice, m ?

Orange Juice Mixture Amounts		
Batches of Juice	Concentrate	Water
1	2 cups	3 cups
2	4 cups	6 cups
3	6 cups	9 cups
4	8 cups	12 cups

Name: _____

Trying It On Your Own

Janie owns a bakery and decorates cakes each day. The table shows the profit in dollars that Janie will receive when she makes a certain number of cakes.

Number of cakes	1	2	3	4	5	10	12
Profit	1	3	5		9		

1. What numbers should be placed in the table, assuming the same pattern continues? Select the correct completed table, using the rule for the relationship between number of cakes and profit.

a.

Number of cakes	1	2	3	4	5	10	12
Profit	1	3	5	6	9	10	11

b.

Number of cakes	1	2	3	4	5	10	12
Profit	1	3	5	6	9	12	14

c.

Number of cakes	1	2	3	4	5	10	12
Profit	1	3	5	7	9	19	23

d.

Number of cakes	1	2	3	4	5	10	12
Profit	1	3	5	16	9	20	24

Name: _____

2. What pattern describes the profit when the number of cakes increases by 1?

- a. The profit increases by 1.
- b. The profit is double the number of cakes, less 1.
- c. The profit is double the number of cakes.
- d. The profit increases by 2.

3. What is Janie's profit if she decorates 30 cakes?

- a. \$60
- b. \$59
- c. \$45
- d. \$3

Name: _____

4. Which of the following is NOT an equation?

a. $3 - 5 = -2$

b. $4 \cdot 5 = 20$

c. $7 = 3 + 4$

d. $8 - 12$

Name: _____

Warming Up:

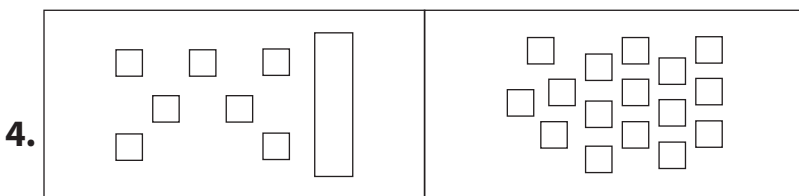
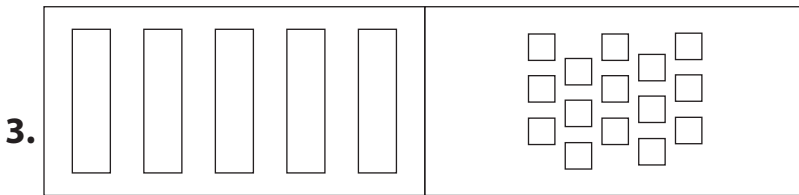
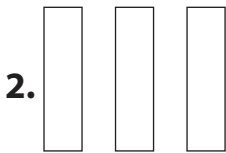
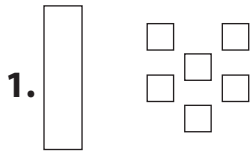
$$6 + 8 = \underline{\quad\quad} + 5$$

$$\underline{\quad\quad} + 9 = 15 - 3$$

Write 2 equivalent numerical expressions.

Name: _____

Learning to Solve



Name: _____

Practicing Together

1. Use your tiles to represent the equation $8x + 4 = 20$. Draw the tile arrangement you used.

2. What is the value of x in the equation $8x + 4 = 20$?

3. Describe how you found the value of x .

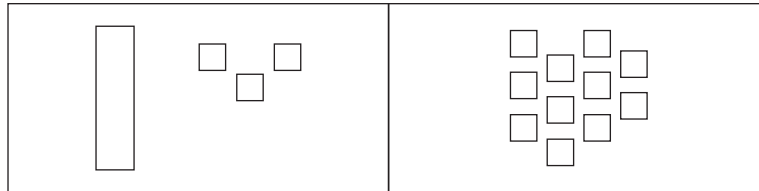
4. What is the value of c in the equation $8 + c = 15$?

- a. 5
- b. 7
- c. 23
- d. 0

Name: _____

Trying It on Your Own

1. Choose the equation that represents the diagram.



- a. $x + 3 = 11$
- b. $11 + x = 3$
- c. $3 + 3 + 3 = 11$
- d. $x + x + x + 3 = 11$

2. What is the value of x in the equation represented in number 1?

- a. $x = 14$
- b. $x = 11$
- c. $x = 8$
- d. $x = 3$

Name: _____

3. What is the value of x in the equation $6x = 12$?

- a. $x = 3$
- b. $x = 1$
- c. $x = 6$
- d. $x = 2$

4. What is a way to find the value of x in the equation $14 + x = 28$?

- a. Count up from 14 to 28.
- b. Subtract 14 from 28.
- c. Draw a diagram.
- d. All of the above are ways to find the value of x .

Name: _____

Warming Up:

Work in pairs to play Make It a Rectangle. In this game, you will match the edges of the cards so that an algebraic expression and a word description match up. When you finish, you should have a rectangle that measures 3 cards by 4 cards.

Name: _____

Learning to Solve

Alicia's 85 on her social studies test was 37 points less than twice the grade on her math test. What was the grade on her math test?

What are we trying to find, what is the unknown?

Frank received 366 votes for student council president, which were 12 more than 3 times the amount of votes received by Quinn. How many votes did Quinn receive?

What are we trying to find, what is the unknown?

Name: _____

Practicing Together

1. Stephen rode the tilt-a-whirl 10 times, which was 5 times as many times as he rode the tea cups at the carnival. How many times did he ride the tea cups at the carnival?

2. Jennifer, who bought \$23 worth of beauty products last month, spent \$11 less than Gina had spent. How much did Gina spend on beauty products?

3. At the school dance on Friday, the DJ played 14 slow dances, which is equal to the quotient of the number of fast dances and 2. How many fast dances did the DJ play?

Name: _____

Trying It On Your Own

Choose the correct solution for each problem.

1. Riley has 26 video games, which is half as many games as Peter. How many games does Peter have?

- a. 24 games
- b. 13 games
- c. 52 games
- d. 28 games

2. The dance team raised \$1785. This amount is 40 less than five times as much as the money raised by the band. How much money did the band raise?

- a. \$8,725
- b. \$357
- c. \$1825
- d. \$365

Name: _____

3. Rico just downloaded 7 new songs from the Internet, which is 3 less than twice the amount Juan downloaded. How many songs did Juan download? Choose the equation to use to solve for the amount of songs Juan downloaded.

a. $2x + 3 = 7$

b. $7 + 3 = 2x$

c. $2x - 3 = 7$

d. $2x + 7 = 3$

4. Emmanuel had saved \$83 to purchase a new video game player. Jaqui, Emmanuel's sister, had saved \$3 more than half of what Emmanuel had saved. She told Emmanuel, "If I save \$40 more, I'll have more money than you have saved now." Emmanuel said he'd still have more money saved. Who is right?

a. Emmanuel, because he'll have \$83 and his sister will have \$80.

b. Jaqui, because when she has saved \$40 more, she'll have \$86, which is more than her brother has.

c. Emmanuel, because he will have saved more money in the time it takes for Jaqui to save her \$40.

d. Neither is right, because they'll have the same amount of money saved.

Masters for Game and Activity Cards

EXPRESSIONS AND EQUATIONS 1

Cross It Out! Gameboard for Lessons 6 and 7*Round 1*

1	2	3	4	5	6	7	8	9	10
----------	----------	----------	----------	----------	----------	----------	----------	----------	-----------

Numbers from dice roll: _____

The equation for:

1: _____

2: _____

3: _____

4: _____

5: _____

6: _____

7: _____

8: _____

9: _____

10: _____

Cross It Out! Game Board for Lessons 6 and 7*Round 2*

1	2	3	4	5	6	7	8	9	10
----------	----------	----------	----------	----------	----------	----------	----------	----------	-----------

Numbers from dice roll: _____

The equation for:

1: _____

2: _____

3: _____

4: _____

5: _____

6: _____

7: _____

8: _____

9: _____

10: _____

Cross It Out! Game Board for Lessons 6 and 7*Round 3*

1	2	3	4	5	6	7	8	9	10
----------	----------	----------	----------	----------	----------	----------	----------	----------	-----------

Numbers from dice roll: _____

The equation for:

1: _____

2: _____

3: _____

4: _____

5: _____

6: _____

7: _____

8: _____

9: _____

10: _____

Cross It Out! Game Board for Lessons 6 and 7*Round 4*

1	2	3	4	5	6	7	8	9	10
----------	----------	----------	----------	----------	----------	----------	----------	----------	-----------

Numbers from dice roll: _____

The equation for:

1: _____

2: _____

3: _____

4: _____

5: _____

6: _____

7: _____

8: _____

9: _____

10: _____

Cross It Out! Game Board for Lessons 6 and 7*Round 5*

1	2	3	4	5	6	7	8	9	10
----------	----------	----------	----------	----------	----------	----------	----------	----------	-----------

Numbers from dice roll: _____

The equation for:

1: _____

2: _____

3: _____

4: _____

5: _____

6: _____

7: _____

8: _____

9: _____

10: _____

Fact Family Sort Activity Cards for Lesson 8

$$55 \div 55 = x$$

$$x \cdot 53 = 1060$$

$$x + 350 = 450$$

$$1060 \div 53 = x$$

$$55 \div x = 55$$

$$125 + x = 375$$

$$375 - x = 125$$

$$1060 \div 530 = x$$

$$530 \cdot x = 1060$$

$$350 + x = 450$$

$$450 - x = 350$$

$$1060 \div x = 530$$

$$55 \cdot x = 55$$

$$x + 125 = 375$$

$$450 - 350 = x$$

$$1060 \div x = 53$$

$$x \cdot 55 = 55$$

$$375 - 125 = x$$

$$x \cdot 530 = 1060$$

$$53 \cdot x = 1060$$

Fact Family Sort Activity Answer Sheet for Lesson 8

$$450 - x = 350$$

$$x + 350 = 450$$

$$450 - 350 = x$$

$$350 + x = 450$$

$$375 - x = 125$$

$$x + 125 = 375$$

$$375 - 125 = x$$

$$125 + x = 375$$

$$53 \cdot x = 1060$$

$$1060 \div 53 = x$$

$$x \cdot 53 = 1060$$

$$1060 \div x = 53$$

$$530 \cdot x = 1060$$

$$1060 \div x = 530$$

$$x \cdot 530 = 1060$$

$$1060 \div 530 = x$$

$$55 \cdot x = 55$$

$$55 \div x = 55$$

$$x \cdot 55 = 55$$

$$55 \div 55 = x$$

Matching Cards for Lesson 9

$$14 = 7n$$

$$36 = n \div 12$$

$$2(n + 7) = 14$$

$$36 = 12 - n$$

$$12 = n - 9$$

$$36 = n - 12$$

36 is some number less than 12

12 is 9 less than a number

36 is 12 less than a number

twice the sum of a number and 7 is 14

14 is the product of 7 and a number

36 is the quotient of a number and 12

Matching Cards Answer Sheet for Lesson 9

$$36 = n \div 12$$

36 is the quotient of a number and 12

$$36 = n - 12$$

36 is 12 less than a number

$$36 = 12 - n$$

36 is some number less than 12

$$14 = 7n$$

14 is the product of 7 and a number

$$12 = n - 9$$

12 is 9 less than a number

$$2(n + 7) = 14$$

twice the sum of a number and 7 is 14

Make it a Rectangle Activity Cards for Lessons 10 and 10A

$10 - 12x$ $7 + 3x$ Twice the sum of x and 3 $2(x + 3)$ 5 decreased by 3 times some number	The square of x $x - 3$ some number decreased by 3 $5 - x$ 5 decreased by some number	$1 + 3x$ $8x + 1$ The product of 8 and x increased by 1 $8 - x$ 8 decreased by some number $\frac{1}{2}x + 2$ The sum of 2 and the product of x and $\frac{1}{4}$	$3 - x$ $2x + 1$ The sum of x and 8 $x + 8$ $5(2 + x)$ The product of 5 and the sum of 2 and x $\frac{1}{3}x + 1$ Some number cubed x^3 $\frac{1}{2}(x + 2)$ Half of the sum of x and 2
$5 - 3x$ $x + 2$ Some number increased by 8 $8 + x$ $4 + x$ Some number increased by 4	Some number divided by 8 $x \div 8$ $5 - x$ 5 decreased by some number	15 fewer than x $x - 15$ The sum of 2 and the product of x and $\frac{1}{4}$	$3x$ The sum of 2 and the product of b and the fraction $x + \frac{1}{3}$ $3(x + 2)$
$12 - 3x$ $3x + 5$ One fewer than a number $x - 1$	$2(5 + x)$	$x(5 + 2)$	$3(x + 2)$

Make it a Rectangle Activity Cards for Lessons 10 and 10A

$6 - 3x$ $9 + 3y$ Twice the sum of some number and 4 $2(a + 4)$ 9 decreased by 5 times some number	The cube of y $4y + 1$ The product of 4 and y increased by 1 $b - 7$	$4 + 2x$ $y + 3$ The sum of y and 3 $9 - y$	$7 - a$ $3y + 3$ $7(4 - c)$
$9 - 5x$ $y + 3$ $3 + y$	b decreased by 7 $\frac{y}{4}$ $3 - a$ Some number increased by 8 $6 + b$	9 decreased by some number $\frac{1}{3}b + 9$ Some number divided by 4 4^2	The product of 7 and the difference of 4 and c $\frac{1}{8}x + 1$ The square of 4 $\frac{1}{2}(y + 2)$
Some number increased by 3 $14 - 5a$ $5x + 3$	3 decreased by some number $x - 3$ 3 fewer than a number $8(4 + x)$	The sum of 9 and the product of b and the fraction $y - 12$ 12 fewer than y $9(6 + 3)$	Half of the sum of 2 and some number $z + \frac{1}{2}$ The product of b and 4 $4b$ $4(y + 8)$

Words to Symbols Expression Cards for Lesson 14

E1

$$\frac{(n + 6)}{2}$$

E2

$$n^2 + 6$$

E3

$$2n + 12$$

E4

$$2n + 6$$

E5

$$2(n + 3)$$

E6

$$\frac{n}{2} + 6$$

E7

$$(3n)^2$$

E8

$$(n + 6)^2$$

Words to Symbols Word Cards for Lesson 14

W1

**Multiply n by two then
add six.**

W2

**Multiply n by three then
square the answer.**

W3

**Square n then
add six.**

W4

**Add six to n then
divide by two.**

W5

**Add three to n then
multiply by two.**

W6

**Add six to n then
square the answer.**

W7

**Multiply n by two then
add twelve.**

W8

**Divide n by two then
add six.**

Expressions and Words Cards Answer Sheet for Lesson 14

$$\begin{array}{r} \text{E1} \\ (n + 6) \\ \hline 2 \end{array}$$

W4

Add six to n then divide by two.

$$\begin{array}{r} \text{E3} \\ 2n + 12 \end{array}$$

W7

Multiply n by two then add twelve.

$$\begin{array}{r} \text{E5} \\ 2(n + 3) \end{array}$$

W5

Add three to n then multiply by two.

$$\begin{array}{r} \text{E7} \\ (3n)^2 \end{array}$$

W2

Multiply n by three then square the answer.

$$\begin{array}{r} \text{E2} \\ n^2 + 6 \end{array}$$

W3

Square n then add six.

$$\begin{array}{r} \text{E4} \\ 2n + 6 \end{array}$$

W1

Multiply n by two then add six.

$$\begin{array}{r} \text{E6} \\ \frac{n}{2} + 6 \end{array}$$

W8

Divide n by two then add six.

$$\begin{array}{r} \text{E8} \\ (n + 6)^2 \end{array}$$

W6

Add six to n then square the answer.

Notes

EQUATIONS

AND

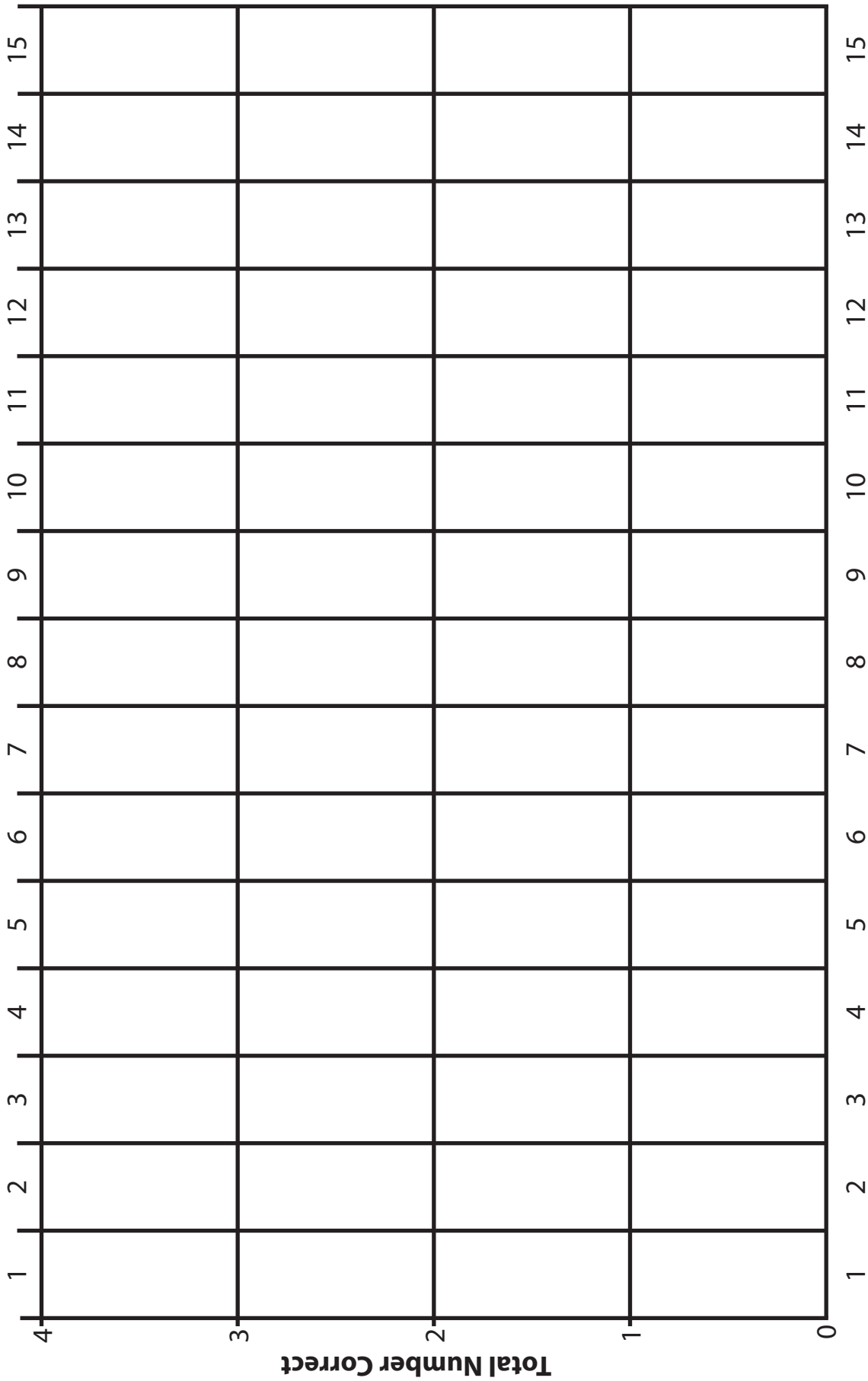
EXPRESSIONS 1

Name: _____

Example											
Picture											
Generalizations											

Name _____

Graph Your Progress



Number Correct _____

Lesson Number _____

Expressions and Equations 1

Extra Practice

Additional Practice



Figure 1

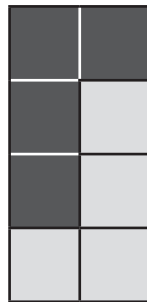


Figure 2

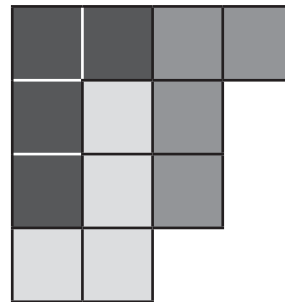


Figure 3

1. Which table shows the relationship in figures 1–3?

a.

Figure Number	Number of Squares
1	4
2	5
3	6
4	7
5	8

b.

Figure Number	Number of Squares
1	3
2	6
3	9
4	12
5	16

c.

Figure Number	Number of Squares
1	4
2	8
3	12
4	16
5	20

d.

Figure Number	Number of Squares
1	4
2	7
3	13
4	19
5	28

2. Identify the pattern and select the number that goes in the blank.

_____, 12, 48, 192

- a. Add each number by 36. The missing number is – 24.
- b. Add each number by 24. The missing number is – 12.
- c. Multiply each number by 4. The missing number is 3.
- d. Multiply each number by 3. The missing number is 4.

3. What is the missing number in the sequence?

23, 41, _____, 77

- a. 59
- b. 18
- c. 57
- d. 66

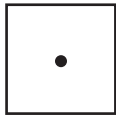


Figure 1

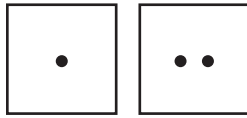


Figure 2

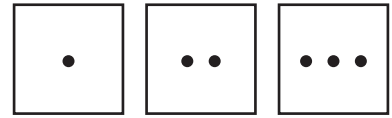


Figure 3

4. Without drawing figures, find the total number of dots needed to make the eighth and ninth figures.

- a.** eighth figure = 35 dots and ninth figure = 46 dots
- b.** eighth figure = 17 dots and ninth figure = 18 dots
- c.** eighth figure = 8 dots and ninth figure = 9 dots
- d.** eighth figure = 36 dots and ninth figure = 45 dots

Additional Practice

Use the figures below to answer questions 1 and 2.

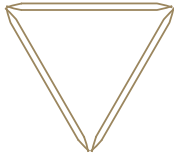


Figure 1

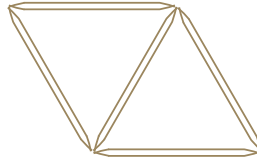


Figure 2

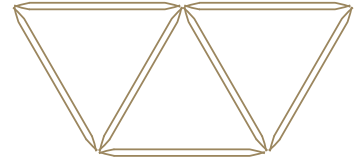


Figure 3

1. If the pattern continues, how many sticks are needed to make the 7th figure in this pattern?

- a. 21 sticks
- b. 15 sticks
- c. 7 sticks
- d. 14 sticks

2. Martinez has built a row of triangles on his desk using the pattern from problem 1. He knows how many total triangles, but does not know how many sticks he used. Which expression would help him determine the number of sticks he used? (n = the figure number)

- a. $3 \times n$
- b. $1 \times n$
- c. $1 + (3 \times n)$
- d. $1 + (2 \times n)$

Use the figures below to answer questions 3 and 4.



Figure 1

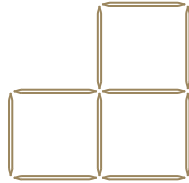


Figure 2

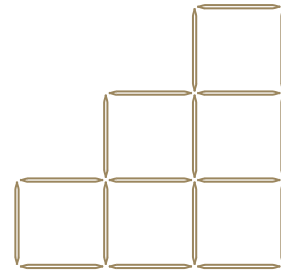


Figure 3

3. How many sticks are needed to make the 4th figure in this pattern?

- a. 16
- b. 12
- c. 20
- d. 24

4. Mia continued to build the figures. She knows the number of figures, but does not know how many sticks she used. Which expression would help her determine the number of sticks she used? (n = the figure number)

- a. $3n$
- b. $4n$
- c. $1 + 3n$
- d. $1 + 4n$

Additional Practice



Figure 1



Figure 2

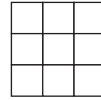


Figure 3

$\square = 1$ unit of area

Length of 1 side of the square = 1 unit of length

Complete the table.

Figure Number	1	2	3	4	5	8	n
Perimeter	4	8					
Area	1	4					

1. Which of the following describe the pattern of the perimeter in words?

- The number of the figure plus 3.
- The number of the figure plus 6.
- The number of the figure times 4.
- The number of the figure times 2.

2. Which of the following describes the pattern for the area? (n = the figure number)

- a. $2n$
- b. $n + 2$
- c. n
- d. $n \times n$ or n^2

3. What is the perimeter for figure 9?

- a. 36 units
- b. 45 units
- c. 18 units
- d. 15 units

4. What is the area for figure 11?
- a. 111 square units
 - b. 121 square units
 - c. 13 square units
 - d. 22 square units

Additional Practice

Choose the answer that correctly used the order of operations.

1. $3(8 - 5) + 6 \cdot 7$

a. 49

b. 51

c. 342

d. 81

2. $25 - 3 \cdot 7 + 2 - 2 \cdot 2$

a. 308

b. 3

c. 2

d. 1

3. $(4 - 2)^2 \times 7 - 3 + 22 \div 11$

- a. 13
- b. 3
- c. 10
- d. 27

4. Each operation in the following expression has a tag above it. In what order should the operations be performed? Number the tags in that order.

$$18 - 3 \cdot 2 + 4^2 \div 8 + 2$$

- a. 3, 1, 4, 2, 5, 6
- b. 1, 2, 3, 4, 5, 6
- c. 4, 2, 5, 1, 3, 6
- d. 1, 4, 5, 2, 3, 6

Additional Practice

Choose the answer that shows the expression is evaluated correctly.

1. $(4 + 6) + 5^2$

- a. 35
- b. 15
- c. 52
- d. 250

2. $2 + 16 \div 2 - 7$

- a. 2
- b. 9
- c. 27
- d. 3

Choose the expression with the correctly placed grouping symbols to make the statement true.

3. $9 + 5 \div 2 \times 3 = 21$

a. $9 + (5 \div 2) \times 3$

b. $(9 + 5) \div 2 \times 3$

c. $9 + 5 \div 2 \times 3$

d. $9 + 5 \div (2 \times 3)$

4. Trey was told to simplify the expression $16 - 2 \times 8 + 1$. He said the answer was 1. Is he correct? Why or why not?

a. He is incorrect. The answer is 113. He should have subtracted $16 - 2$, multiplied 14×8 , and then added $112 + 1$.

b. He is correct. He added $8 + 1$ first, multiplied 2×9 , and then subtracted $16 - 15$. The answer is 1.

c. He is correct. The answer is 1 because he multiplied 2×8 and then subtracted $16 - 16$ and added $0 + 1$.

d. He is incorrect. You cannot solve this problem because there are no parentheses to tell you what to do first.

Additional Practice

1. Cassie substituted 9 for the value of k . The result was 75. Which expression did Cassie evaluate?

- a. $8k - 3$
- b. $3 + 8k$
- c. $25 + 50k$
- d. $50 + 25k$

2. Ben evaluated the expression $3(n - 2) + 5$. He said the answer was 35. What value of n did Ben use?

- a. 10
- b. 30
- c. 12
- d. 35

3. Find the value of the expression $x + 2x + 2(x - 1)$ when $x = 10$.

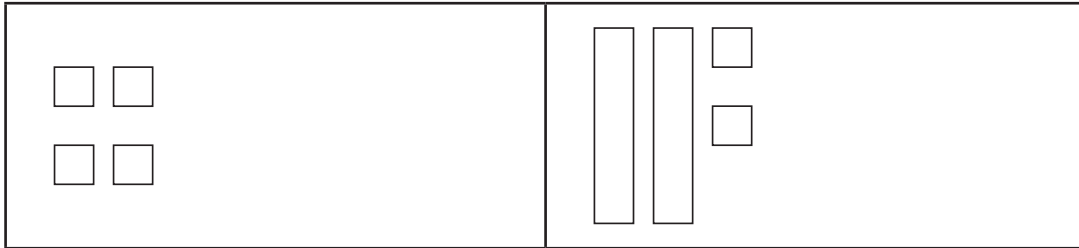
- a. 48
- b. 31
- c. 49
- d. 52

4. Find the value of the expression $8w + 10 - 5w$ when $w = 5$.

- a. 40
- b. 25
- c. 5
- d. 35

Additional Practice

1. Choose the equation that represents the diagram



- a. $4 + 2x + 2 = 6$
- b. $4x + 2 = 2$
- c. $4 = 2x + 2$
- d. $2x = 6$

2. What is the value of x in the equation in number 1?

- a. $x = 0$
- b. $x = 0.5$
- c. $x = 3$
- d. $x = 1$

3. What is the value of x in the equation $42 = 7x$?

- a. $x = 6$
- b. $x = 35$
- c. $x = 49$
- d. $x = 294$

4. What is a method to find the value of w in the equation $w + 15 = 28$?

- a. Count up from 15 to 28.
- b. Subtract 15 from 28.
- c. Draw a diagram.
- d. All of the above are ways to find the value of w .

Additional Practice

Find the related equation and the correct value for x .

1. $78 = x - 10$

a. $78 - 10 = x$

$x = 68$

b. $78 \div 10 = x$

$x = 68$

c. $78 + 10 = x$

$x = 88$

d. $78(10) = x$

$x = 780$

2. $48 \div x = 3$

a. $48 - 3 = x$

$x = 45$

b. $48(3) = x$

$x = 144$

c. $48 + 3 = x$

$x = 51$

d. $48 \div 3 = x$

$x = 16$

3. $x(15) = 60$

a. $60 + 15 = x$
 $x = 75$

b. $60 - 15 = x$
 $x = 45$

c. $60(15) = x$
 $x = 900$

d. $60 \div 15 = x$
 $x = 4$

4. $x - 150 = 560$

a. $560 + 150 = x$
 $x = 710$

b. $560 - 150 = x$
 $x = 410$

c. $560(150) = x$
 $x = 84,000$

d. $560 \div 150 = x$
 $x = 3.733$

Additional Practice

1. What expression represents the product of 5 and n decreased by 6?

- a. $5 - 6n$
- b. $6n - 5$
- c. $5n - 6$
- d. $6 - 5n$

2. Which expression represents 3 increased by the product of 8 and k ?

- a. $k + 3(8)$
- b. $(3 + 8)k$
- c. $3 + 8k$
- d. $8k + 3$

3. Tori had 6 more colored pencils than Reagan had. Reagan had w colored pencils. Which expression represents the number of colored pencils Tori has?

- a.** $6(w)$
- b.** $6 + w$
- c.** $w - 6$
- d.** $6 \div w$

4. Kolby gave each of his 4 friends an equal share of his energy bars (y). Which expression represents the number of energy bars each friend received?

- a.** $y \div 4$
- b.** $y - 4$
- c.** $y + 4$
- d.** $4(y)$

Additional Practice

1. Laola made 156 cookies. She divided them equally into 12 bags. How many cookies were in each bag? Choose the equation and the solution that tells the number of cookies in each bag.

- a. $156 \div x = 12$. You cannot solve this equation because you cannot divide by x .
- b. $156 \div x = 12$. Use a related equation ($156 \div 12 = x$) to find that $x = 13$.
- c. $156 - x = 12$. Add 156 and 12 to find that $x = 168$.
- d. $156 + 12 = x$. Add 156 and 12 to find that $x = 168$.

2. Which word problem is represented by the algebra equation $w = (k + 14)2$?

- a. Rosco bought 2 books. Each book cost k dollars plus a \$14 shipping charge. What is the total cost (w) of the books?
- b. Rosco bought 14 books. Each book cost \$14 plus \$2 for shipping. What is the total cost (w) of the books?
- c. Rosco bought 2 books. One book cost \$14 and the other book cost k dollars. What is the total cost (w) of the books?
- d. Rosco bought 16 books. The books cost k dollars each. What is the total cost (w) of the books?

3. Jessica was packaging cupcakes she made into boxes that hold a dozen each. She had $4\frac{1}{2}$ boxes. How many cupcakes (h) did she have?

a. $h = 4\frac{1}{2} + 12$

b. $4\frac{1}{2}(h) = 12$

c. $h = 4\frac{1}{2}(12)$

d. $4\frac{1}{2} + h = 12$

4. The perimeter of an equilateral triangle (p) is 42 cm. How long (x) is each side? Choose the equation that could be correctly used to find the length of each side.

a. $p = x + x + x$. To solve, add $42 + 42 + 42$, $x = 126$ cm.

b. $p = 3(x)$. To solve, add $3 + 42$, $x = 45$ cm.

c. $p = x + x + x$. To solve, $42 - 3 = 39$, $x = 39$ cm.

d. $p = 3x$. To solve, $42 \div 3 = x$, $x = 14$ cm.

Additional Practice

Solve equation by using only inspection or cover and inspection.

1. $2y - 3 = 21$

a. $y = 8$

b. $y = 12$

c. $y = 14$

d. $y = 24$

2. $7j + 8 = 71$

a. $j = 79$

b. $j = 10$

c. $j = 9$

d. $j = 57$

3. $11w = 132$

a. $w = 121$

b. $w = 143$

c. $w = 12$

d. $w = 11$

4. $3c - 8 = 43$

a. $c = 51$

b. $c = 35$

c. $c = 11.667$

d. $c = 17$

Additional Practice

1. Jason made this table to solve the equation $3y + 1 = 22$.

y	$3y + 1$	22
0	1	22
1	4	22
5	16	22
7	29	22
10	31	22

What is the solution to the equation?

- a. $y = 29$
- b. $y = 10$
- c. $y = 7$
- d. $y = 3$

2. Seaton made this table to solve the equation $x - 16 = 32$.

x	$x - 16$	32
20	4	32
25	9	32
40	24	32
44	28	32
48	32	32

What is the solution to the equation?

- a. $x = 32$
- b. $x = 28$
- c. $x = 30$
- d. $x = 48$

3. Skylar made this table to solve the equation $2x + 6 = 38$.

x	$2x + 6$	38
0	6	38
5	16	38
10	26	38
15	36	38
16	38	38
20	46	38
22	50	38

What is the solution to the equation?

- a. $x = 50$
- b. $x = 16$
- c. $x = 6$
- d. $x = 38$

4. Nina made this table to solve the equation $5y + 2 = 47$.

y	$5y + 2$	47
0	2	47
5	27	47
8	42	47
9	47	47
10	52	47
11	57	47

What is the solution to the equation?

- a. $y = 5$
- b. $y = 9$
- c. $y = 10$
- d. $y = 47$

Additional Practice

1. Marissa has 3 times as many mystery books as she has nonfiction books. She has 18 nonfiction books. How many books does she have altogether?

- a.** 72 books
- b.** 21 books
- c.** 54 books
- d.** 15 books

2. Makana bought a juice for \$3 and 3 granola bars. He spent \$18. How much did each granola bar cost?

- a.** \$3.00
- b.** \$6.00
- c.** \$15.00
- d.** \$5.00

3. Karys added 6 pages to her history paper. Her dog ate 4 pages! She now only has 10 pages left. How many pages did she start with? Which equation models the problem?

a. $6 + x = 10$

b. $6 + x - 4 = 10$

c. $6 + 4x = 10$

d. $10 - 6x = 4$

4. The bike rental shop charges \$15 per hour to rent a bike. They also charge \$12 to clean it when it is returned. Dom spent \$87 to rent a bike. How many hours did he rent it? Which equation models the problem?

a. $15x + 12x = 87$

b. $15 + 12x = 87$

c. $15x + 12 = 87$

d. $87x - 15 = 12$

Additional Practice

1. Monica was given \$100 to spend on new albums. Each album cost the same amount. After buying 5 albums, she had \$25 left. How much did each album cost?

- a.** \$25
- b.** \$75
- c.** \$15
- d.** \$5

2. Morris gave away half of his cookies. He then baked 12 more cookies. He now has 30 cookies. How many cookies did he start with?

- a.** 36 cookies
- b.** 18 cookies
- c.** 30 cookies
- d.** 42 cookies

3. Bryce's class went on a field trip. There were 143 students on the trip. All 6 buses were filled. 17 students had to ride in vans. How many students were in each bus?

- a.** 126 students
- b.** 21 students
- c.** 26 students
- d.** 31 students

4. Sarah has an online subscription for new books. She pays a \$7 fee each month plus \$14 for every book she buys. She spent \$91 one month. How many books did she buy that month?

- a.** 14 books
- b.** 10 books
- c.** 6 books
- d.** 7 books

Additional Practice

Use the following problem to solve problems 1–4.

The Math Camp likes to make a snack mix for each camper. The following ingredients go into 1 serving of the snack mix:

- 3 cups of chocolate candies
- 1 cup of almonds
- 1 cup of peanuts
- 2 cups of raisins

The cost of each serving of snack mix is \$3.75.

1. How many cups of chocolate candies are needed for 7 servings of the snack mix?

- a.** 21 cups
- b.** 3 cups
- c.** 7 cups
- d.** 49 cups

2. How many cups of raisins are needed for 10 servings of snack mix?

- a.** 20 cups
- b.** 10 cups
- c.** 30 cups
- d.** 17 cups

- 3.** If there are h campers, which expression could be used to determine the number of cups of peanuts needed if every camper gets 2 cups of the snack mix?
- a.** $h + 2$
 - b.** $2h$
 - c.** $h + 2h(1)$
 - d.** $2(h + 1)$
- 4.** On the last day of camp, 42 cups of snack mix were served. How many cups of each ingredient was used? Choose a method that could be used to solve the problem.
- a.** There are 4 ingredients. Multiply each ingredient by 4. There are 12 cups of chocolate candies, 4 cups of almonds, 4 cups of peanuts, and 8 cups of raisins.
 - b.** One serving is 7 cups. That means that there were 7 cups of each ingredient.
 - c.** One serving is 7 cups. Divide 42 by $7 = 6$. There are 6 cups of each ingredient.
 - d.** One serving is 7 cups. Divide 42 by $7 = 6$. Multiple each ingredient's amount by 6. 18 cups of chocolate candies, 6 cups of almonds, 6 cups of peanuts, and 12 cups of raisins.

Multiplication and Division

Timed Practice

Name _____

Teacher _____

Period _____

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

Name: _____

Multiplication Timed Practice Sheet 2

Number Correct: _____

$$\begin{array}{r} 1 \quad 7 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \quad 5 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \quad 9 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \quad 7 \\ \times 11 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \quad 10 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \quad 7 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \quad 3 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \quad 4 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \quad 4 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \quad 12 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \quad 7 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \quad 7 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 14 \quad 8 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \quad 6 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \quad 5 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 17 \quad 9 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \quad 6 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 19 \quad 9 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \quad 8 \\ \times 4 \\ \hline \end{array}$$

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

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

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

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

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

Name: _____

Multiplication Timed Practice Sheet 8

Number Correct: _____

$$\begin{array}{r} 1 \quad 3 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \quad 9 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \quad 11 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \quad 6 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 7 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \quad 8 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \quad 5 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \quad 4 \\ \times 11 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \quad 4 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \quad 6 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \quad 6 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \quad 8 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \quad 10 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 14 \quad 11 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \quad 2 \\ \times 12 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \quad 9 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 17 \quad 6 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \quad 2 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 19 \quad 7 \\ \times 12 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \quad 4 \\ \times 2 \\ \hline \end{array}$$

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

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

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 $6 \overline{)66}$

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 $7 \overline{)56}$

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 $12 \overline{)120}$

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 $6 \overline{)30}$

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 $12 \overline{)96}$

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 $7 \overline{)28}$

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 $1 \overline{)9}$

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 $5 \overline{)50}$

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 $3 \overline{)33}$

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 $5 \overline{)10}$

Name: _____

Mixed Facts Timed Practice Sheet 1

Number Correct: _____

1 4
 × 7
 —

2 2)16

3 4
 × 5
 —

4 7)21

5 11
 × 1
 —

6 7)56

7 8
 × 8
 —

8 3
 × 4
 —

9 4)36

10 3)18

11 8)64

12 3
 × 12
 —

13 9)45

14 7)70

15 7
 × 6
 —

16 10
 × 6
 —

17 8
 × 2
 —

18 9
 × 6
 —

19 5)20

20 5)55

Name: _____

Mixed Facts Timed Practice Sheet 2

Number Correct: _____

1 2
 × 9
 —

2 5
 × 10
 —

3 2)12

4 5
 × 7
 —

5 6)42

6 11
 × 4
 —

7 7
 × 8
 —

8 8)32

9 6)54

10 3)33

11 5
 × 12
 —

12 1)12

13 12
 × 2
 —

14 4)16

15 6
 × 9
 —

16 3
 × 6
 —

17 12)24

18 3
 × 8
 —

19 10)20

20 4)8

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) $\overline{36}$

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 $\overline{)28}$

Name: _____

Mixed Facts Timed Practice Sheet 5

Number Correct: _____

1
$$\begin{array}{r} 10 \\ \times 2 \\ \hline \end{array}$$

2
$$\begin{array}{r} 3 \\ \times 11 \\ \hline \end{array}$$

3
$$3 \overline{)15}$$

4
$$11 \overline{)55}$$

5
$$12 \overline{)24}$$

6
$$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$$

7
$$\begin{array}{r} 9 \\ \times 1 \\ \hline \end{array}$$

8
$$\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$$

9
$$\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$$

10
$$\begin{array}{r} 11 \\ \times 7 \\ \hline \end{array}$$

11
$$3 \overline{)12}$$

12
$$4 \overline{)20}$$

13
$$7 \overline{)35}$$

14
$$9 \overline{)36}$$

15
$$\begin{array}{r} 12 \\ \times 10 \\ \hline \end{array}$$

16
$$\begin{array}{r} 8 \\ \times 9 \\ \hline \end{array}$$

17
$$\begin{array}{r} 9 \\ \times 9 \\ \hline \end{array}$$

18
$$8 \overline{)48}$$

19
$$6 \overline{)60}$$

20
$$4 \overline{)24}$$

Name: _____

Mixed Facts Timed Practice Sheet 6

Number Correct: _____

1 3
 × 9
 —

2 5)30

3 4)28

4 10
 × 8
 —

5 8
 × 7
 —

6 7
 × 3
 —

7 2)20

8 5)25

9 6)24

10 2
 × 12
 —

11 11
 × 2
 —

12 12)48

13 1)11

14 11)44

15 9
 × 9
 —

16 5
 × 3
 —

17 5)15

18 9
 × 4
 —

19 6)48

20 3
 × 10
 —

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) $\overline{70}$

Name: _____

Mixed Facts Timed Practice Sheet 8

Number Correct: _____

1
$$\begin{array}{r} 10 \\ \times 4 \\ \hline \end{array}$$

2
$$3 \overline{)24}$$

3
$$5 \overline{)45}$$

4
$$\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$$

5
$$\begin{array}{r} 6 \\ \times 11 \\ \hline \end{array}$$

6
$$\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$$

7
$$10 \overline{)40}$$

8
$$1 \overline{)5}$$

9
$$8 \overline{)24}$$

10
$$3 \overline{)36}$$

11
$$\begin{array}{r} 11 \\ \times 9 \\ \hline \end{array}$$

12
$$6 \overline{)18}$$

13
$$12 \overline{)72}$$

14
$$\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$$

15
$$9 \overline{)54}$$

16
$$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$$

17
$$7 \overline{)14}$$

18
$$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$$

19
$$\begin{array}{r} 7 \\ \times 12 \\ \hline \end{array}$$

20
$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

Name: _____

Mixed Facts Timed Practice Sheet 9

Number Correct: _____

1 4
 × 4
 —

2 9)18

3 9
 × 5
 —

4 3)12

5 9)27

6 11
 × 11
 —

7 5)60

8 6)12

9 6)60

10 5
 × 6
 —

11 12
 × 8
 —

12 8
 × 1
 —

13 7)49

14 6
 × 2
 —

15 11
 × 10
 —

16 7)77

17 7
 × 10
 —

18 11)121

19 8)16

20 4
 × 12
 —

Name: _____

Mixed Facts Timed Practice Sheet 10

Number Correct: _____

1 3
 × 6
 —

2 10
 × 7
 —

3 2)18

4 11)88

5 7
 × 2
 —

6 4)48

7 9
 × 10
 —

8 8)72

9 4
 × 3
 —

10 7)63

11 3
 × 7
 —

12 11
 × 6
 —

13 3)9

14 12)96

15 1)10

16 5)15

17 10)90

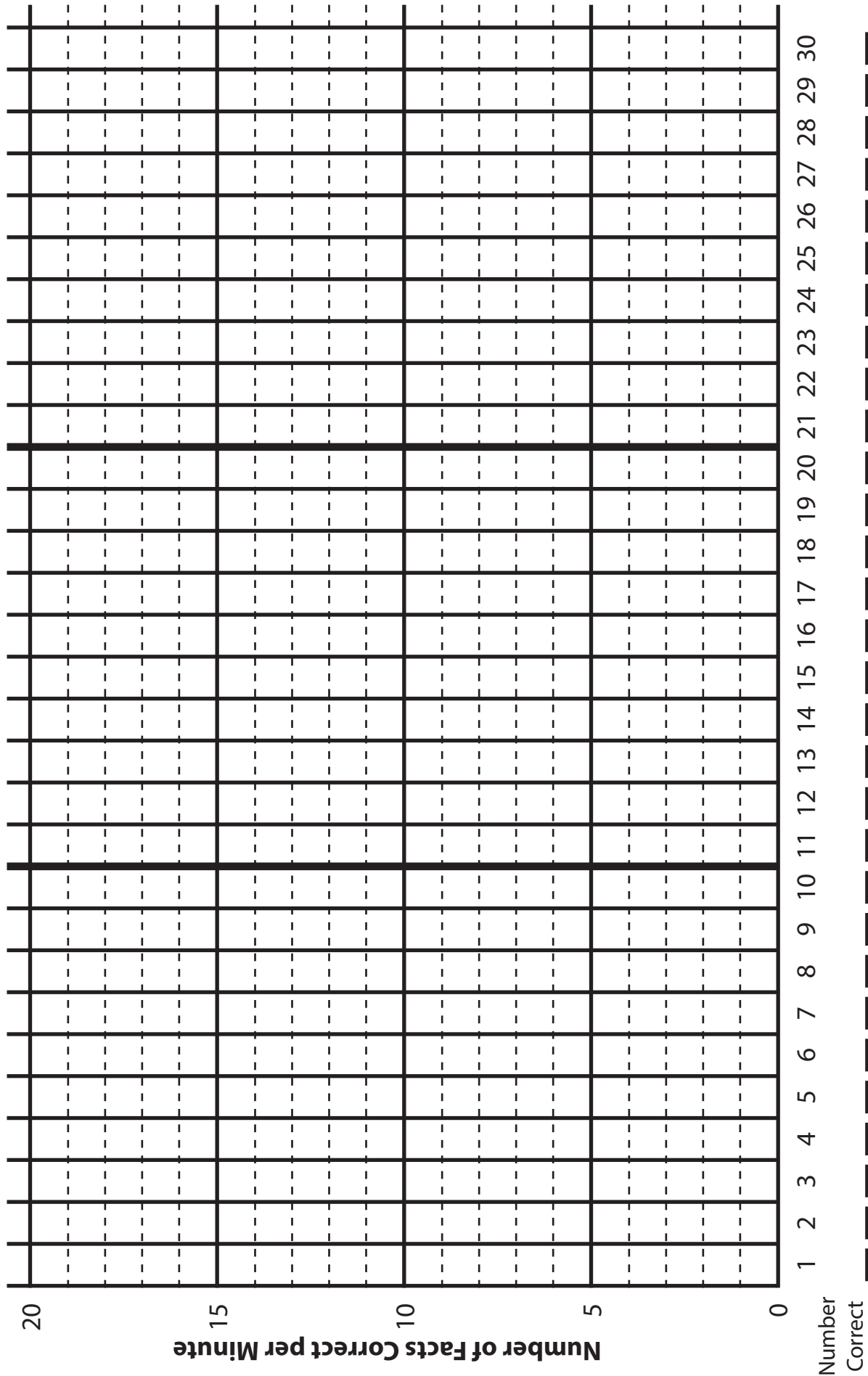
18 9
 × 12
 —

19 2
 × 5
 —

20 11
 × 12
 —

Name _____

Fact Practice Graph



Fact Practice Lesson Number

