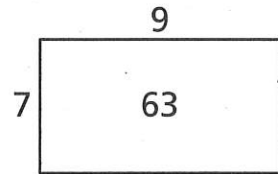


► **Discuss Inverse Operations**

Multiplication and division are inverse operations. They undo each other.

A **factor pair** for a number is a pair of whole numbers whose product is that number. For example, a factor pair for 15 is 3 and 5. A rectangle model is a diagram that shows a factor pair and the product.



1. Which numbers in the rectangle model above are the factors? Where are the factors located?

2. Which number is the product? Where is the product located?

A rectangle model can help you find all eight related multiplication and division equations for two factors. You can write these equations for the rectangle model above.

$63 = 7 \times 9$

$7 \times 9 = 63$

$63 = 9 \times 7$

$9 \times 7 = 63$

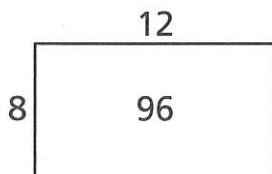
$7 = 63 \div 9$

$63 \div 9 = 7$

$9 = 63 \div 7$

$63 \div 7 = 9$

3. Write the eight related multiplication and division equations for the rectangle model below.

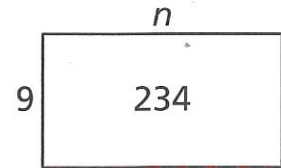




► Write Equations to Solve Problems

Read the problem and answer the questions.

4. Brenda planted 234 trees on her farm. The farm has 9 rows of trees. How many trees are in each row?



- The number of trees on the farm is known.
Write the number.
- The number of rows of trees is known.
Write the number.
- The number of trees in each row is unknown.
Use the letter n to represent the number of trees in each row. Write a situation equation to solve the problem.
- Write a solution equation.
- Solve your equation.

Write an equation to solve the problem. Draw a model if you need to.

Show your work.

5. Evan is starting a cycling program. He will ride 315 miles each month for the next 6 months. How many miles does he plan to ride in all?

6. Suki has 152 stickers to place in a sticker album. How many pages will Suki fill with stickers if each page in the album holds 8 stickers?

7. Al bought a wall pattern with 27 rows of 28 squares. How many squares are in the wall pattern?

► Discuss Comparison Problems

To prepare for a family gathering, Sara and Ryan made soup. Sara made 2 quarts. Ryan made 6 quarts.

You can **compare** amounts, using multiplication and division.

Let r equal the number of quarts Ryan made.

Let s equal the number of quarts Sara made.

Ryan made 3 times as many quarts as Sara. Ryan (r)

2	2	2
---	---	---

 6

$$r = 3 \cdot s, r = 3s, \text{ or } s = r \div 3$$

Sarah (s)

2	2	2
---	---	---

Solve.

Natasha made 12 quarts of soup. Manuel made 3 quarts.

1. Draw **comparison bars** to show the amount of soup each person made.

2. _____ made 4 times as many quarts as _____.

3. Write a multiplication equation that compares the amounts. _____

4. Write a division equation that compares the amounts.

5. Multiplication is the putting together of equal groups. How can this idea be used to explain why a *times as many* comparing situation is multiplication?



► Share Solutions

Write an equation to solve each problem.

Show your work.

Draw a model if you need to.

6. There are 24 students in the science club. There are 2 times as many students in the drama club. How many students are in the drama club?

a. Draw comparison bars to compare the numbers of students in each club.

b. Write an equation to solve the problem.

7. There are 180 pennies in Miguel's coin collection and that is 5 times as many as the number of quarters in his coin collection. How many quarters does Miguel have?
-

8. Fred has 72 football cards and Scott has 6 football cards. How many times as many football cards does Fred have as Scott has?
-

9. Audrey has 1,263 centimeters of fabric, and that is 3 times as much fabric as she needs to make some curtains. How many centimeters of fabric does Audrey need to make the curtains?
-

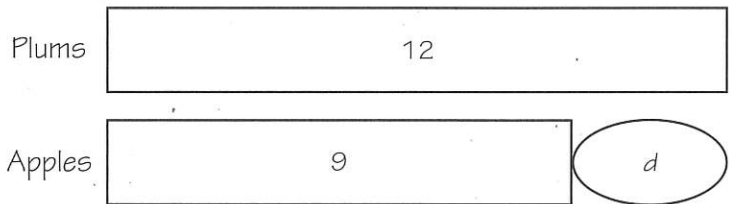
► **Discuss Comparison Situations**

In Lesson 4-4, you learned about multiplication and division **comparison situations**. You can also compare by using addition and subtraction. You can find *how much more* or *how much less* one amount is than another.

The amount more or less is called the difference. In some problems, the difference is not given. You have to find it. In other problems, the lesser or the greater amount is not given.

Mai has 9 apples and 12 plums.

- How many more plums than apples does Mai have?
- How many fewer apples than plums does Mai have?



Comparison bars can help us show which is more: We show the difference in an oval.

Draw comparison bars for each problem. Write and solve an equation. Discuss other equations you could use.

1. A nursery has 70 rose bushes and 50 tea-tree bushes. How many fewer tea-tree bushes than rose bushes are at the nursery?

2. Dan wants to plant 30 trees. He has dug 21 holes. How many more holes does Dan need to dig?

► Share Solutions

Draw comparison bars for each problem.
Write and solve an equation.

Show your models here.

3. Kyle and Mackenzie are playing a computer game. Kyle scored 7,628 points. Mackenzie scored 2,085 fewer points than Kyle. How many points did Mackenzie score?

4. The school fair fundraiser made \$632 more from baked goods than from games. The school fair made \$935 from games. How much money did the school fair make from baked goods?

5. A college football stadium in Michigan seats 109,901 people. A college football stadium in Louisiana seats 92,542 people. How many fewer people does the stadium in Louisiana seat than the stadium in Michigan?

6. The soccer team drilled for 150 minutes last week. The team drilled for 30 minutes more than it scrimmaged. For how long did the team scrimmage?



► Solve Comparison Problems

Show your models here.

For each problem, draw a model and write *addition* or *multiplication* to identify the type of comparison. Then write and solve an equation to solve the problem.

7. Nick and Liz both collect marbles. Liz has 4 times as many marbles as Nick. If Nick has 240 marbles, how many marbles does Liz have?

Type of comparison: _____

Equation and answer: _____

8. Samantha has 145 fewer songs on her portable media player than Luke has on his portable media player. If Samantha has 583 songs, how many songs does Luke have?

Type of comparison: _____

Equation and answer: _____

9. A large bookstore sold 19,813 books on Saturday and 22,964 books on Sunday. How many fewer books did the bookstore sell on Saturday than on Sunday?

Type of comparison: _____

Equation and answer: _____

10. Last weekend, Mr. Morgan rode his bike 3 miles. This weekend, he rode his bike 21 miles. How many times as many miles did Mr. Morgan ride his bike this weekend as last weekend?

Type of comparison: _____

Equation and answer: _____



► Practice

Write and solve an equation to solve each problem.
Draw comparison bars when needed.

Show your work.

11. On the last day of school, 100 more students wore shorts than wore jeans. If 130 students wore jeans, how many students wore shorts?
- _____
12. Matthew completed a puzzle with 90 pieces. Wendy completed a puzzle with 5 times as many pieces. How many pieces are in Wendy's puzzle?
- _____
13. There were 19,748 adults at a baseball game. There were 5,136 fewer children at the baseball game than there were adults. How many children were at the baseball game?
- _____

► What's the Error?

Dear Math Students,

I was asked to find the number of stamps that Amanda has if her friend Jesse has 81 stamps and that is 9 times as many stamps as Amanda has.

To solve the problem, I wrote this equation: $81 \times 9 = s$. I solved the equation and wrote $s = 729$. My teacher says that my answer is not correct. Can you help me understand what I did wrong?

Your friend,
Puzzled Penguin

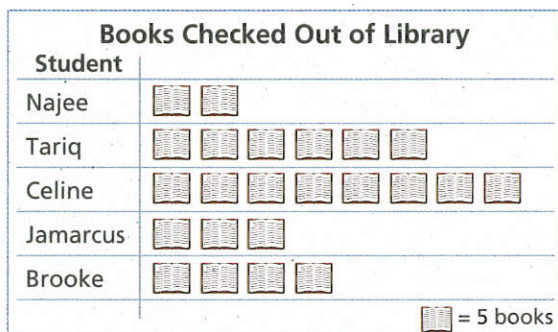


14. Write a response to Puzzled Penguin.
- _____
- _____
- _____



► Use a Pictograph

A **pictograph** is a graph that uses pictures or symbols to represent data. This pictograph shows how many books 5 students checked out of a library in one year.



Use the pictograph to solve.

- Write an addition equation and a subtraction equation that compare the number of books Tariq checked out (t) to the number of books Jamarcus checked out (j).

- Write a multiplication equation and a division equation that compare the number of books Najee checked out (n) to the number of books Celine checked out (c).

- Celine checked out twice as many books as which student?

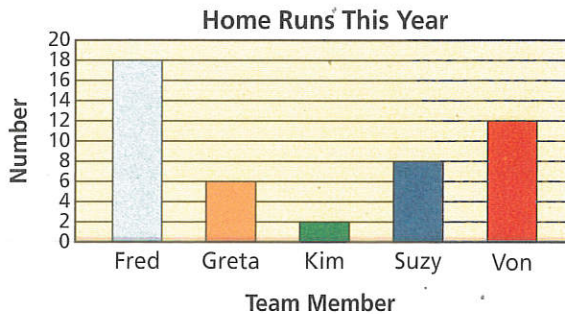
- Which student checked out 30 fewer books than Celine?

- The number of books Dawson checked out is not shown. If Jamarcus checked out 10 more books than Dawson, how many books did Dawson check out?



► Use a Bar Graph

The bar graph below shows the number of home runs hit by five members of a baseball team.



Use the bar graph to solve.

6. Write an addition equation and a subtraction equation that compare the number of home runs Suzy hit (s) to the number of home runs Kim hit (k).

7. Write a multiplication equation and a division equation that compare the number of home runs Greta hit (g) to the number of runs Fred hit (f).

8. How many more home runs did Von hit than Greta?

9. Which player hit 10 fewer home runs than Von?

10. This year, Fred hit 2 times as many home runs as he hit last year. How many home runs did Fred hit last year?

11. **Math Journal** Write a sentence about the graph that contains the words *times as many*.



► Discuss the Steps of the Problem

Sometimes you will need to work through more than one step to solve a problem. The steps can be shown in one or more equations.

Solve.

- At Parkes Elementary School, there are 6 fourth-grade classes with 17 students in each class. On Friday, 23 fourth-graders brought lunch from home and the rest of the students bought lunch in the cafeteria. How many fourth-graders bought lunch in the cafeteria on Friday?

- Solve the problem again by finishing Tommy's and Lucy's methods. Then discuss how the two methods are alike and how they are different.

Tommy's Method	Lucy's Method
<p>Write an equation for each step.</p> <p>Find the total number of students who are in fourth grade.</p> $6 \times 17 = \underline{\quad}$ <p>Subtract the number of students who brought lunch from home.</p> $102 - 23 = \underline{\quad}$	<p>Write an equation for the whole problem.</p> <p>Let n = the number of students who bought lunch.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Students in each fourth grade class.</p> <p>6</p> </div> <div style="text-align: center;"> <p>Students who brought lunch from home.</p> <p>_____</p> </div> </div> $6 \times \underline{\quad} - \underline{\quad} = n$ $\underline{\quad} = n$

- Use an equation to solve. Discuss the steps you used.

Susan buys 16 packages of hot dogs for a barbecue. Each package contains 12 hot dogs. Hot-dog buns are sold in packages of 8. How many packages of hot-dog buns does Susan need to buy so she has one bun for each hot dog?

► Share Solutions

Use an equation to solve.

Show your work.

4. Admission to the theme park is \$32 for each adult. A group of 5 adults and 1 child pays \$182 to enter the theme park. How much is a child's ticket to the theme park?

5. Kenny collects CDs and DVDs. He has a total of 208 CDs. He also has 8 shelves with 24 DVDs on each shelf. How many more CDs does Kenny have than DVDs?

6. Carla plants 14 tomato plants. Her gardening book says that each plant should grow 12 tomatoes. She plans to divide the tomatoes equally among herself and 7 friends. How many tomatoes would each person get?

7. Alex and his family go on a roadtrip. On the first day, they drive 228 miles. On the second day, they drive 279 miles. Their destination is 1,043 miles away. How many miles do they have left to drive to reach their destination?

8. A public library has more than 50,000 books. There are 249 science books and 321 technology books. Mary sorts the science and technology books on shelves with 6 books on each shelf. How many shelves will Mary fill with science and technology books?



► Discuss the Steps

1. Mr. Stills makes bags of school supplies for the 9 students in his class. He has 108 pencils and 72 erasers. He puts the same number of pencils and the same number of erasers into each bag. How many more pencils than erasers are in each bag of school supplies?

Solve the problem by finishing Nicole's and David's methods.
 Discuss what is alike and what is different about the methods.

Nicole's Method

Write an equation for each step.

Divide to find the number of pencils that Mr. Stills puts in each bag of school supplies.

$$108 \div 9 = \underline{\quad}$$

Divide to find the number of erasers that Mr. Stills puts in each bag of school supplies.

$$72 \div 9 = \underline{\quad}$$

Subtract the number of erasers in each bag from the number of pencils in each bag.

$$12 - 8 = \underline{\quad}$$

There are more pencils than erasers in each bag of school supplies.

David's Method

Write an equation for the whole problem.

Let p = how many more pencils than erasers are in each bag of school supplies

The number of pencils in each bag of school supplies,

The number of erasers in each bag of school supplies.

$$\begin{array}{r} \begin{array}{|c|} \hline \quad \quad \quad \\ \hline \end{array} \\ \underline{\quad} \div 9 \\ 12 - 8 = p \end{array} - \begin{array}{r} \begin{array}{|c|} \hline \quad \quad \quad \\ \hline \end{array} \\ \underline{\quad} \div 9 \\ \quad = p \end{array} = p$$

$$\underline{\quad} = p$$

There are more pencils than erasers in each bag of school supplies.



► Discuss the Steps (continued)

2. John is selling bags of popcorn for a school fundraiser. So far, John has sold 45 bags of popcorn for \$5 each. His goal is to earn \$300 for the school fundraiser. How many more bags of popcorn must John sell to reach his goal?

Solve the problem by writing an equation for each step. Then solve the problem by writing one equation for the whole problem.

Write an equation for each step.

Multiply to find how much money John has earned so far selling popcorn.

$$\underline{\hspace{2cm}} \times \$5 = \$\underline{\hspace{2cm}}$$

Subtract to find how much money John has left to earn to reach his goal.

$$\$300 - \$\underline{\hspace{2cm}} = \$\underline{\hspace{2cm}}$$

Divide to find the number of bags of popcorn John must sell to reach his goal.

$$\$75 \div \$5 = \underline{\hspace{2cm}}$$

John must sell more bags of popcorn to reach his goal.

Write an equation for the whole problem.

Let b = the number of bags of popcorn John must sell to reach his goal.

John's fundraiser goal amount.	Amount of money John has raised so far.
-----------------------------------	--

$$\left(\underline{\hspace{2cm}} - \underline{\hspace{2cm}} \times \$5 \right) \div \$5 = b$$

$$(\$300 - \$\underline{\hspace{2cm}}) \div \$5 = b$$

$$\$_{\underline{\hspace{2cm}}} \div \$5 = b$$

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

John must sell more bags of popcorn to reach his goal.



► Multistep Word Problems

Use an equation to solve.

Show your work.

3. Sara bought some bags of beads. Each bag had 9 beads and cost \$2. Sara used the beads to make 18 necklaces, each with 25 beads. How much money did Sara pay for the beads for all of the necklaces that she made?
-

4. There are 5 fourth-grade classes going on a field trip. Two of the classes have 16 students each and 3 of the classes have 17 students each. They are travelling in vans that hold 9 students each. How many vans must they have to transport all the students?
-

5. A movie theater has 13 screens. On weekends, each screen shows a movie 7 times in one day. On weekdays, each screen shows a movie 5 times in one day. How many more showings are there on Saturdays than on Tuesdays?
-

6. Justin goes to the store and buys 3 T-shirts for \$14 each. He also buys 2 pairs of jeans for \$23 each. He gives the cashier \$100. How much change does Justin receive?
-

7. Terrence has 24 model cars arranged in equal rows of 6 model cars. Natalie has 18 model cars arranged in equal rows of 3 model cars. How many rows of model cars in all do they have?
-



► What's the Error?

Dear Math Students,

My friend and I are planning a hike. We will hike from point *A* to point *B*, which is a distance of 28 miles. Then we will hike from Point *B* to Point *C*, which is a distance of 34 miles. We will walk 7 miles each day for 8 days. We are trying to figure out how many miles we need to walk on the ninth day to reach Point *C*.

I wrote and solved this equation.

$$28 + 34 - 7 \times 8 = t$$

$$62 - 7 \times 8 = t$$

$$55 \times 8 = t$$

$$440 = t$$

This answer doesn't make sense. Did I do something wrong? What do you think?

Your friend,
Puzzled Penguin



8. Write a response to Puzzled Penguin.



► Discuss Multistep Word Problems

Use equations to solve.

Show your work.

1. Eli reads 6 pages in a book each night. Shelby reads 8 pages each night. How many pages altogether will Eli and Shelby read in one week?
-

2. Min Soo is ordering 5 pizzas for a party. Each pizza will be cut into 8 slices. Three pizzas will have multiple toppings, and the others will be plain cheese. How many slices of plain cheese pizza is Min Soo ordering for the party?
-

3. Jasmine and Mori each received the same number of party favor bags at a friend's party. Each bag contained 8 favors. If Jasmine and Mori received a total of 48 favors, how many party favor bags did they each receive?
-

4. In art class, Ernesto made some fruit bowls for his mother and brother. Nine apples can be placed in each bowl. Ernesto's brother placed 18 apples in the bowls he was given, and Ernesto's mother placed 36 apples in the bowls she was given. How many fruit bowls did Ernesto make?
-

5. On Tuesday, a bicycle shop employee replaced all of the tires on 6 bicycles. On Wednesday, all of the tires on 5 tricycles were replaced. What is the total number of tires that were replaced on those days?
-

► Solve Multistep Word Problems

Use equations to solve.

Show your work.

6. Mrs. Luong bought 9 trees for \$40 each. She paid for her purchase with four \$100 bills. How much change did she receive?

7. Chan Hee is carrying a box that weighs 37 pounds. In the box are five containers of equal weight, and a book that weighs 2 pounds. What is the weight of each container?

8. A pet shop is home to 6 cats, 10 birds, 3 dogs, and 18 tropical fish. Altogether, how many legs do those pets have?

9. Dan has 7 fish in his aquarium. Marilyn has 4 times as many fish in her aquarium. How many fish do Dan and Marilyn have altogether?

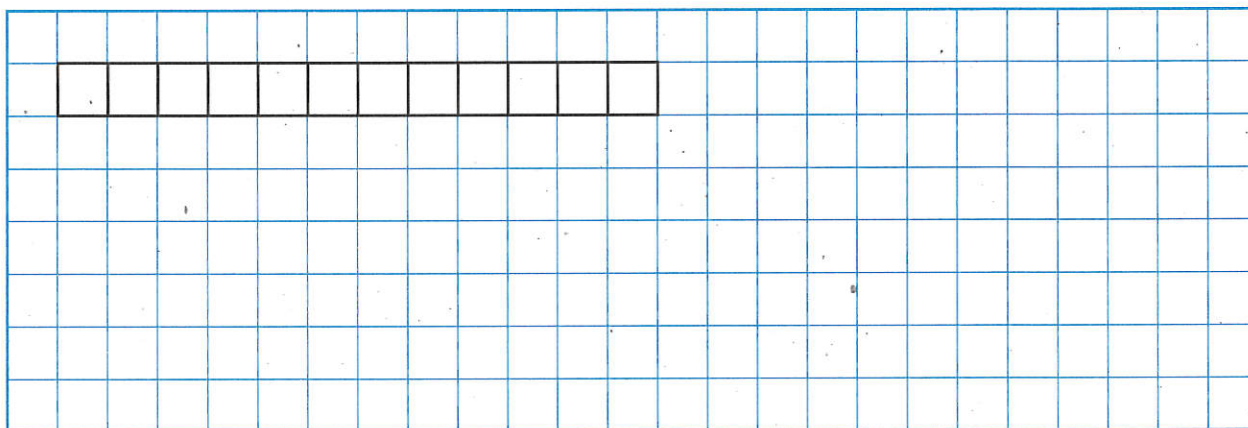
10. Write a problem that is solved using more than one step. Then show how to solve the problem.



► Find Factor Pairs

A factor pair for a number is two whole numbers whose product is that number. For example, 2 and 5 is a factor pair for 10.

1. Draw arrays to show all the factor pairs for 12 on the grid below. The array for 1 and 12 is shown.



2. List all the factor pairs for 12. _____

Use the table to find all the factors pairs for each number.

3. 32

1	32
2	

4. 44

1	44

5. 100

1	100

List all the factor pairs for each number.

6. 29

7. 63



VOCABULARY

prime number
composite number

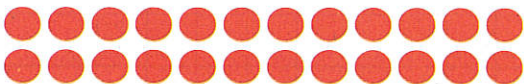
► Identify Prime and Composite Numbers

A number greater than 1 that has 1 and itself as its only factor pair is a **prime number**. Some prime numbers are 2, 5, 11, and 23.

A number greater than 1 that has more than one factor pair is a **composite number**. Some composite numbers are 4, 12, 25, and 100.

The number 1 is neither prime nor composite.

8. Use counters to model the arrays for all factor pairs for 24. The array for 2 and 12 is shown below.



9. Is 24 a *prime number* or a *composite number*? Explain your answer.

Write whether each number is *prime* or *composite*.

10. 99

11. 72

12. 31

13. 45

14. 19

15. 88

16. 67

17. 100

18. 53

19. Is 2 the only even prime number? Explain.



► Factors and Multiples

A **multiple** of a number is a product of that number and a counting number.

20. What are the first five multiples of 4? Explain your method.

21. Write the first ten multiples of 8.

22. Is 54 a multiple of 6? Explain how you know.

23. Is 6 a factor of 40? Explain how you know.

24. What are the first five multiples of 9? Explain your method.

25. What are the factors of 63?

26. Is 63 a multiple of each factor that you listed for Exercise 25? Explain how you know.

► **Practice With Factors and Multiples**

Tell whether 7 is a factor of each number. Write *yes* or *no*.

27. 7

28. 84

29. 93

30. 49

Tell whether each number is a multiple of 9. Write *yes* or *no*.

31. 27

32. 30

33. 81

34. 99

Use a pattern to find the unknown multiples.

35. $3 \times 11 = 33$

$4 \times 11 = 44$

$5 \times 11 =$ _____

$6 \times 11 =$ _____

$7 \times 11 =$ _____

36. $5 \times 6 = 30$

$6 \times 6 =$ _____

$7 \times 6 =$ _____

$8 \times 6 =$ _____

$9 \times 6 =$ _____

Use the rule to complete the pattern.

37. Rule: skip count by 6

6, _____, _____, 24, _____, 36, _____, 48, _____, 60

38. Rule: skip count by 5

5, 10, _____, 20, 25, _____, 35, 40, _____, _____, 55, _____

39. Rule: skip count by 7

7, 14, 21, _____, _____, _____, _____, _____, _____

40. Rule: skip count by 12

12, 24, _____, _____, _____, _____, _____, _____



► Numerical Patterns

A **pattern** is a sequence that can be described by a rule.

Use the rule to find the next three terms in the pattern.

1. 22, 24, 26, 28, 30, ...

Rule: add 2

2. 5, 10, 20, 40, ...

Rule: multiply by 2

3. 1, 3, 9, 27, ...

Rule: multiply by 3

4. 2, 9, 16, 23, 30, ...

Rule: add 7

Use the rule to find the first ten terms in the pattern.

5. First term: 9 Rule: add 5

6. First term: 10 Rule: add 60

► Real World Applications

Solve.

7. Amy lives in the twentieth house on Elm Street. The first house on Elm Street is numbered 3. The second is 6. The third is 9. The fourth is 12. If this pattern continues, what is Amy's house number likely to be?
- _____

House	1st	2nd	3rd	4th	20th
Number	3	6	9	12	

8. Theo runs 5 miles every morning. He tracks his progress on a chart to log how many miles he has run in all. How many miles will Theo write on the 100th day?
- _____

Day	1	2	3	4	5	100
Miles	5	10	15	20	25	



► Extend Patterns

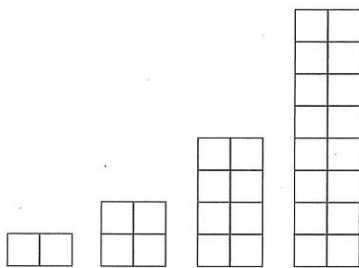


9. What are the repeating terms of the pattern?

10. What will be the tenth term in the pattern? _____

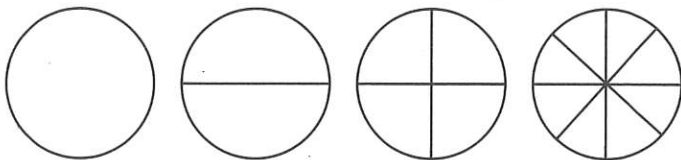
11. What will be the fifteenth term in the pattern? _____

► Growing Patterns



12. How does each figure in the pattern change from one term to the next?

13. Describe the number of squares in the next term in the pattern?



14. How does each figure in the pattern change from one term to the next?

15. How many equal parts will be in the seventh term?



CA CC Content Standards 4.OA.1, 4.OA.2, 4.OA.3,
4.OA.5, 4.NBT.4, 4.NBT.5, 4.NBT.6, 4.MD.2
Mathematical Practices MP.1, MP.2, MP.4, MP.8

► Math and Pottery

Pottery are objects that are first shaped of wet clay and then hardened by baking. Four steps are needed to make a pottery product: preparing the clay mixture, shaping the clay, decorating and glazing the product, and baking the product. Pottery includes products such as works of art, dinnerware, vases, and other household items. Some of the places you can find pottery include art studios, crafts shows, pottery stores, and most households.



Write an equation to solve.

Show your work.

1. A small pottery store has 9 boxes full of pottery items. The boxes weigh 765 pounds in all. How much does each box weigh?

2. Julio and Myra had a pottery stand at the annual craft fair. They sold some of their pottery at the original price of \$13 each and made \$780. Later in the day, they decreased the price of each item by \$4 and sold 20 more items. How much money did they make in all that day?

Write an equation to solve.

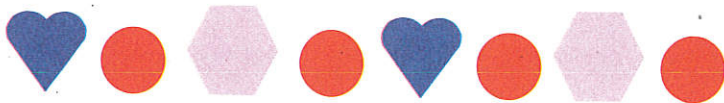
3. Last month, Mr. Smith bought 65 small cans of paint for his pottery shop. This month he bought 3 times as many small cans of paint. How many small cans of paint did he buy this month?
- _____

4. The employees at a pottery warehouse are packing boxes of vases to be delivered by truck. They packed 824 small vases in boxes that each hold 8 vases. They also packed 296 large vases in boxes that each hold 4 vases. How many boxes did the workers pack in all?
- _____

5. Last year, there were 3,875 different pottery items for sale at a large crafts show. This year, there were 1,260 fewer pottery items for sale at the crafts show. How many pottery items were for sale at the crafts show this year?
- _____

Solve.

6. Isabella saw a pottery design that she liked at a crafts store. She wants to copy the design and paint it on a pot she is making. Part of the design is shown below.



- a. What shape should Isabella paint next to continue the design's pattern?
- _____

- b. What will be the fourteenth term in Isabella's design?
- _____



Show your work.



1. The number of ash trees on a tree farm is 5 times the number of pine trees. Choose one expression from each column to create an equation that compares the number of ash trees (a) and pine trees (p).

<input type="radio"/> $a - 5$
<input type="radio"/> $5a$
<input type="radio"/> a
<input type="radio"/> $a \div 5$

=

<input type="radio"/> p
<input type="radio"/> $5p$
<input type="radio"/> $p + 5$
<input type="radio"/> $p - 5$

2. Katie canned 182 quarts of tomatoes last week. She canned 259 quarts of tomatoes this week. How many quarts of tomatoes (q) did Katie can over these two weeks? Write an equation. Then solve.

Equation: _____

$q =$ _____ quarts

3. Eliot sends 217 text messages each week. Write equations to find how many text messages he sends in 4 weeks and in 7 weeks.

Equations: _____

Use the equations to complete the table.

Weeks	Total Text Messages
1	217
4	
7	

4. Solve for n .

$(16 + 12) \div (11 - 7) = n$ $n =$



Review/Test

5. There are 1,342 players in the baseball league. That is 2 times the number of players in the football league. How many players are in the football league? Write an equation. Then solve.

6. A school ordered 688 T-shirts in 3 sizes: small, medium, and large. There are 296 small and 268 medium T-shirts. How many large T-shirts were ordered? Select numbers from the list to complete the equation. Then solve.

3	268	296	688
---	-----	-----	-----

$$l = \boxed{} - (\boxed{} + \boxed{})$$

$l =$ _____ large T-shirts

7. Select the factor pair for 45. Mark all that apply.

- (A) 4, 11 (C) 6, 7 (E) 1, 45
 (B) 3, 15 (D) 4, 12 (F) 5, 9

8. Is a multiple of the prime number 3 also a prime number? Circle your answer.

Yes No

Explain your reasoning.



Review/Test

9. For numbers 9a–9e, choose Yes or No to tell whether the number is prime.

9a. 49 Yes No

9b. 53 Yes No

9c. 63 Yes No

9d. 37 Yes No

9e. 51 Yes No

10. Classify each number from the list as being a multiple of 2, 3, or 5. Write each number in the correct box. A number can be written in more than one box.

18	30	20	24	55	39
----	----	----	----	----	----

Multiple of 2

Multiple of 3

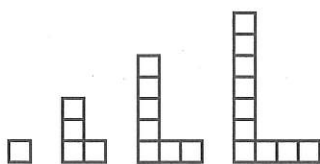
Multiple of 5

11. Use the rule to find the next 3 terms in the pattern.

Rule: multiply by 2

4, 8, 16, 32, , , , ...

12. Draw the next term of the pattern.





13. A team of workers is building a 942-foot trail. They plan to complete 6 feet per hour. How many hours will it take to build the trail?

Choose the equation that can be used to solve this problem. Mark all that apply.

- (A) $942 \times 6 = h$ (D) $6 \times h = 942$
(B) $942 \div 6 = h$ (E) $6 = 942 \times h$
(C) $942 \div h = 6$ (F) $942 = 6 \div h$

14. Roger first ships a large number of packages. Then he ships 3,820 more packages. Roger ships 22,540 packages in all. How many packages did he ship first? Identify the type of comparison as addition or multiplication. Then write and solve an equation to solve the problem.

Type of comparison: _____

Equation: _____

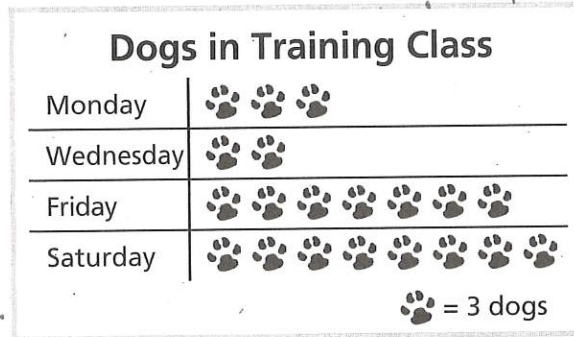
Answer: _____ packages

15. For numbers 15a–15d, select True or False for the calculation.

- 15a. $72 \div (6 + 2) = 9$ True False
15b. $(2 + 7) + (6 - 2) = 36$ True False
15c. $(12 + 8) \div 4 = 10 \div (5 - 3)$ True False
15d. $(35 - 8) \div (2 + 1) = 32$ True False



16. Charlotte made this pictograph to show the number of dogs attending a dog training class this week.



Part A

How many fewer dogs were in training class on Monday than on Friday? Write and solve an equation.

Equation: _____

Answer: _____ fewer dogs

Part B

Choose the number that makes the sentence true.

Charlotte forgot to include Thursday on her graph. There were two times as many dogs at Thursday's class than at Monday's class.

There were

2
6
15
18

 dogs in the training class on Thursday.

Part C

Explain how you determined the number of dogs at Thursday's class.



17. The Ruiz family bought 2 adult tickets and 4 child tickets to the fair. The adult tickets cost \$8 each. The child tickets cost \$3 each.

Part A

Complete the equation Zach and Alannah wrote to find the total cost of the tickets bought by the Ruiz family.

$$\left(\square \times \square \right) + \left(4 \times \square \right) = c$$

Part B

Zach's answer is \$72, and Alannah's answer is \$28. Who has the wrong answer? Explain what error he or she made.

18. A store has 4 bins of planet posters with 23 posters in each bin. It has 3 bins of planet calendars with 26 calendars in each bin. Yesterday, 72 calendars were sold. How many planet posters and calendars are left in all? Explain how you found your answer, and how you know if your answer is reasonable.