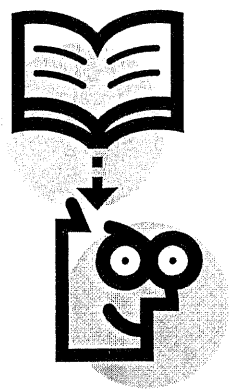


enVisionMath

2014-2015

Homework for Topics 1-8
Reteach
Practice
Enrichment



$$1 + 1 + 1 + 1 + 1 + 1$$

- One student will arrange the counters in groups and the other student will add the number of counters.
- After each repeated addition, have students write the number of counters per group on the sheet of paper, followed by a multiplication sign and the number of groups.
- Then have them write an equal sign and the total number of counters.

$6 + 6 + 6 + 6$	$2 + 2 + 2 + 2$	$4 + 4$
$5 + 5 + 5 + 5$	$2 + 2 + 2$	$5 + 5 + 5$

You win if you are the first to get four connected rectangles, like:

18	21	28	27
12	15	24	32
32	28	16	18
24	20	21	14

You win if you are the first to get four connected rectangles, like:

Report Back To check for understanding, ask a student to repeat and complete this sentence: $[4 + 4 + 4]$

Levelled Homework

Recalling

Name _____ Enrichment 1-1

Meanings of Multiplication

Write an addition sentence and a multiplication sentence for each picture.

- There are 3 groups of 7.

Addition sentence: $7 + 7 + 7 = 21$

Multiplication sentence: $3 \times 7 = 21$
- There are 3 groups of 6.

Addition sentence: $6 + 6 + 6 = 18$

Multiplication sentence: $3 \times 6 = 18$
- There are 4 groups of 10.

Addition sentence: $10 + 10 + 10 + 10 = 40$

Multiplication sentence: $4 \times 10 = 40$
- There are 3 groups of 3.

Addition sentence: $3 + 3 + 3 = 9$

Multiplication sentence: $3 \times 3 = 9$

Also available in print

Practice Master

Name _____ Practice 1-1

Meanings of Multiplication

Write an addition sentence and a multiplication sentence for the picture.

- Write a multiplication sentence for each addition sentence.

$4 + 4 + 4 = 16$

$4 \times 4 = 16$
- Write a multiplication sentence for each addition sentence.

$10 + 10 + 10 = 30$

$3 \times 10 = 30$
- Write a multiplication sentence for each addition sentence.

$10 + 10 + 10 = 30$

$3 \times 10 = 30$
- Write a multiplication sentence for each addition sentence.

$7 + 7 + 7 = 21$

$3 \times 7 = 21$

Number Sense How could you use multiplication to find $7 + 7 + 7$?

$3 \times 7 = 21$

5. A classroom desk has 4 legs. How many legs do 5 desks have altogether?

6. Danielle planted 3 seeds in each of 6 different pots. How many seeds did she plant?

7. Which is the multiplication sentence for $2 + 2 + 2 + 2$?

A $4 \times 4 = 16$
 B $2 \times 2 = 4$
 C $4 \times 2 = 8$
 D $2 \times 6 = 12$

8. Writing to Explain Explain how you can use multiplication to find $2 + 2 + 2 + 2$.

Sample answer: Multiplication can be used to find the total. I know there are 4 equal groups and there are 2 in each group. $4 \times 2 = 8$

Also available in print

Hurry Array!

Name _____ Enrichment 1-1

You can demonstrate multiplication by showing objects in an array. There are two ways to set up an array with two factors. For each array given, create a different array that shows the same factors. Then write the multiplication sentence for each picture.

For 1-5, check students' arrays.

- $4 \times 6 = 24$
- $6 \times 4 = 24$
- $3 \times 6 = 18$
- $6 \times 3 = 18$

There are at least two arrays for any product: the number \times 1 and 1 \times the number. Sometimes there are other possible arrays for a product.

3. Draw the other array for the product 25. Write the multiplication sentence.

$5 \times 5 = 25$

4. Draw the other array for the product 9. Write the multiplication sentence.

$3 \times 3 = 9$

Sometimes there are several different arrays that can be drawn for a product.

5. Draw an array for the product 28 that is not 28×1 , 1×28 , 7×4 , or 4×7 . Write the multiplication sentence for your array.

$14 \times 2 = 28$ or $2 \times 14 = 28$

Also available in print

another for multiples of 7.

- Have students put a square around each multiple of 5 and a triangle around each multiple of 9.
- Ask them what pattern they observe for each (multiples of 2, 5, and 9).
- Have students identify numbers on the chart that are multiples of more than one number.

General Activity • 12

Look at the first two arrays. Think about 7 butterflies in a row. Skip count to find 6×7 , 7×7 , 8×7 , and 9×7 .

Class Activity • 13

Discuss how skip counting by 2s can help you to multiply if there are 4 in each group.

Partner Talk Students should skip count aloud, instead of silently, so that classmates can hear the names of the multiples as that student says the multiples of 2, 5, or 9.

Leveled Homework

Reteaching Master Reteaching 1-2

Patterns for Facts

Example
 $2 \times 18 = 44$
 $25, 100, 220$

All multiples of 2 are even numbers.
 All multiples of 5 end in 0 or 5.
 For all multiples of 9, the sum of the digits is always a multiple of 9. $63, 6 + 3 = 9$

- $9 \times 5 = 45$
- $2 \times 8 = 16$
- $5 \times 8 = 40$
- $9 \times 4 = 36$
- $5 \times 3 = 15$
- $6 \times 2 = 12$
- $5 \times 7 = 35$
- $6 \times 5 = 30$
- $9 \times 2 = 18$
- $10 \times 5 = 50$
- $6 \times 2 = 12$
- $5 \times 6 = 30$
- $18 \times 3 = 54$
- How many baseball cards are in 4 packages?

Item	Number in Package
Baseball cards	5
Stickers	2
Coupons	9
- How many coupons do you get if you buy 7 packages?

63

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Practice Master Practice 1-2

Patterns for Facts

- $1 \times 4 = 4$
- $2 \times 3 = 6$
- $3 \times 9 = 27$
- $4 \times 5 = 20$
- $5 \times 2 = 10$
- $6 \times 5 = 30$
- $7 \times 9 = 63$
- $8 \times 9 = 72$
- $9 \times 6 = 54$
- $2 \times 7 = 14$
- $5 \times 5 = 25$

Algebra Find the missing number.

- $5 \times 9 = 45$
- $3 \times 7 = 21$

14. A package of baseball cards includes 25 baseball cards. How many packages are there?
 A 6 B 4 C 3 D 2

16. Writing to Explain Milton needs to find the product of two numbers. One of the numbers is 9. The answer also needs to be 9. How will he solve the problem?
Sample answer: Milton will multiply $9 \times 1 = 9$. The product of any number and 1 equals that number.

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Enrichment Master Enrichment 1-2

Patterns, Patterns Everywhere

Complete each pattern and write the rule for the pattern you find. Hint: The pattern may involve more than one operation. For example, the numbers 2, 4, 16, 32, 128 form a pattern of multiplying by 2, then multiplying by 4.

- 2, 4, 9, 16, 32, 64
 Pattern Rule: $\times 2$
- 5, 10, 20, 50, 100, 200, 400
 Pattern Rule: $\times 2, \times 5$
- 1, 9, 81, 729
 Pattern Rule: $\times 9, \times 1$
- 7, 0, 0, 0, 0, 0, 0
 Pattern Rule: $\times 0$
- 5, 5, 25, 25, 125, 125
 Pattern Rule: $\times 1, \times 5$
- 1, 1, 7, 7, 49, 49, 343, 343, 2401, 2401
 Pattern Rule: $\times 1, \times 2, \times 3, \times 4, \dots$

7. Although a single starfish may have as many as 44 arms, we are most familiar with starfish that have 5 arms. Write a number pattern for 6 starfish if each had 5 arms. How many arms would there be?
5, 10, 15, 20, 25, 30; 30 arms

Also available in print

- Continue but this time don't show the students how to model $8 \times 1 = 8$.
- Select students to explain how they modeled as they did.
- Ask them to select the multiplication property their model relates to, and explain why.

Center Activity 43

Discuss why drawing arrays helps you to explain the Commutative Property of Multiplication.

a. $4 \times 2 = 2 \times 4$ d. $3 \times 5 = 5 \times 3$
 e. $2 \times 9 = 9 \times 2$ f. $2 \times 6 = 6 \times 2$

Center Activity 44

Toss the cube. Use the number to give one example that shows both the Identity Property and the Commutative Property of Multiplication.

LEVELED Report Back Have students repeat and complete: *Two properties you can use [The Commutative and the Identity Properties of Multiplication]*

Leveled Homework

Reteaching Master Reteaching 1-3

Name _____

Multiplication Properties

You can use the Properties of Multiplication to help you find products.

Commutative Property of Multiplication
 You can multiply any two numbers in any order.
 $2 \times 3 = 3 \times 2$

Identity Property of Multiplication
 When you multiply any number by 1, the product is that number.
 $7 \times 1 = 7$

Zero Property of Multiplication
 When you multiply any number by 0, the product is also 0.
 $3 \times 0 = 0$

1. $7 \times 3 = 3 \times 7$ 2. $4 \times 0 = 0$
 3. $5 \times 4 = 4 \times 5$ 4. $2 \times 1 = 2$
 5. $0 \times 7 = 0$ 6. $8 \times 3 = 3 \times 8$
 7. $9 \times 1 = 1 \times 9$ 8. $1 \times 5 = 5$

9. **Number Sense** How do you know that $35 \times 5 = 5 \times 35$ without finding products?
The Commutative Property of Multiplication states the product is the same regardless of the order in which the two numbers are multiplied.

10. **Writing to Explain** Explain how you know that in $7 \times 6,273 = 6,273$, the 7 will be 1.
Sample answer: Any number multiplied by 1 is that number.

Also available in print

Practice Master Practice 1-3

Name _____

Multiplication Properties

1. $0 \times 3 = 0$ 2. $1 \times 3 = 3$ 3. $7 \times 1 = 7$ 4. $5 \times 0 = 0$
 $3 \times 4 = 4 \times 3$ 5. $1 \times 6 = 6$ 6. $3 \times 7 = 7 \times 3$ 7. $4 \times 8 = 8 \times 4$
 $8 \times 1 = 1 \times 8$ 8. $0 \times 0 = 0$ 9. $1 \times 1 = 1$ 10. $9 \times 0 = 0$ 11. $0 \times 0 = 0$

Algebra Find the missing number. Tell which property can help you.

12. $0 \times 3 = 0$ 13. $1 \times 4 = 4$
Zero Property of Multiplication **Identity Property of Multiplication**

14. Ray has 4 boxes with 5 pens in each box. Kevin has 5 boxes with 4 pens in each box. How many pens do they have together?
They have the same number of pens because $4 \times 5 = 5 \times 4$.

15. Which property can help you find the missing number? $____ \times 6 = 0$
Zero Property of Multiplication

16. **Writing to Explain** Milton needs to find the product of two numbers. One of the numbers is 6. The answer also needs to be 6. How will you solve this problem? Explain.
Sample answer: Milton will multiply $6 \times 1 = 6$. The product of any number and 1 equals that number.

Also available in print

Enrichment 1-3

Name _____

How Does Your Garden Grow?

Area is the name for the number of square units that are in a shape. You can find the area of a rectangle by counting the square units. You can also break apart a rectangle to form different combinations and still have the same area.

Here is Mary's garden. $4 \times 6 = 24$ square units.

Sample answers given.

1. 2.
 3. 4.

Draw lines and write the first letter of the flower to show several possible planting plans.

1. $4 \times 4 = 16$ square units
 $2 \times 2 = 4$ square units
 $2 \times 4 = 8$ square units

2. $3 \times 4 = 12$ square units
 $3 \times 4 = 12$ square units
 $1 \times 1 = 1$ square unit

Also available in print

Activity 1-5

You win if you are the first to get four connected rectangles, like:

6, 12, 18, 24	3, 6, 9, 12	9, 18, 27, 36
□□□□	□□□□	□□□□
4, 8, 12, 16	2, 4, 6, 8	4, 8, 12, 16
□□□□	□□□□	□□□□
8, 16, 24, 32	6, 12, 18, 24	15, 30, 45, 60
□□□□	□□□□	□□□□
10, 20, 30, 40	11, 22, 33, 44	7, 14, 21, 28
□□□□	□□□□	□□□□

Activity 1-6

You win if you are the first to get four connected rectangles, like:

3, 6, 9, 12	3, 6, 9, 12	9, 18, 27, 36
□□□□	□□□□	□□□□
2, 4, 6, 8	11, 22, 33, 44	4, 8, 12, 16
□□□□	□□□□	□□□□
6, 12, 18, 24	5, 10, 15, 20	15, 30, 45, 60
□□□□	□□□□	□□□□
11, 22, 33, 44	9, 18, 27, 36	7, 14, 21, 28
□□□□	□□□□	□□□□

Activity 1-5

You win if you are the first to get four connected rectangles, like:

60	45	25	40
15	50	30	15
40	50	45	75
35	25	55	20

Activity 1-6

You win if you are the first to get four connected rectangles, like:

60	45	25	40
15	50	30	15
40	50	45	75
35	25	55	20

as you say: 14 is 7 times as many as 2.

- Explain that the equation can also be interpreted as "14 is 7 times as many as 2."
- Have pairs write a multiplication fact and provide a "times as many" word sentence for the fact.

Partner Talk Listen for language that is evidence of pattern recognition. For example, a student might say: "The list of numbers that begins with 3 has the pattern 1 times 3, 2 times 3, 3 times 3, 4 times 3. The next number should be 5 times 3. So the next number is 15."

Leveled Homework

Reaching Master

Enriching 1-5

Multiplication as Comparison

You can interpret a multiplication equation as comparison.

Here are two ways to interpret the equation $15 = 5 \times 3$.

15 is 5 times as many as 3. $\Delta \Delta \Delta \Delta \Delta$
 $\Delta \Delta \Delta \Delta \Delta$
 $\Delta \Delta \Delta \Delta \Delta$
 $\Delta \Delta \Delta \Delta \Delta$
 $\Delta \Delta \Delta \Delta \Delta$

3 stars. 15 triangles. 5 squares. 15 triangles as squares.

There are 5 times as many triangles as stars.

There are 3 times as many triangles as squares.

Complete the word sentences for the given multiplication equation.

- $30 = 6 \times 5$ 30 is 6 times as many as 5.
- $2 \times 8 = 16$ 2 times as many as 8 is 16.
- $9 = 3 \times 3$ 9 is 3 times as many as 3.

Write a multiplication equation to match each word sentence.

- 28 is 4 times as many as 7. $28 = 4 \times 7$ or $10 \times 10 = 100$
- 6 times as many as 3 is 24. $6 \times 3 = 24$ or $6 = 1 \times 6$
- Number Sense Write a multiplication equation that uses the numbers 4, 9, and 36. Then write a word sentence for your equation that includes the words "times as many."
Sample answer: $36 = 4 \times 9$; 36 is 4 times as many as 9.

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Practice Master

Practice 1-5

Multiplication as Comparison

Complete the word sentences for the given multiplication equation.

- $8 = 2 \times 4$ 8 is 2 times as many as 4.
- $35 = 7 \times 5$ 35 is 7 times as many as 5.
- $10 \times 9 = 90$ 10 times as many as 9 is 90.
- $4 \times 4 = 16$ 4 times as many as 4 is 16.

Write a multiplication equation to match each word sentence.

- 72 is 8 times as many as 9. $72 = 8 \times 9$ or $3 \times 2 = 6$ or $2 \times 3 = 6$
- 24 is 5 times as many as 3. $5 \times 5 = 1$ or $7 \times 7 = 49$

Reason Write a word sentence for each word sentence.

When you switch the order of the factors, you get the same equation.

Write a Problem Write a "times as many" problem about circles and squares that can be represented by $20 = 4 \times 5$. Draw a picture of circles and squares to match your problem.

Sample answer: There are 4 times as many circles as squares. How many circles are there?

Also available in print

What Number Am I?

Identify each number based on the information in each paragraph.

- I am a 3-digit whole number. If you double me, I remain a 3-digit number. If you add 2 to me after I am doubled, I become a 4-digit number. What number am I?
499, since $499 + 499 = 998$, and $998 + 2 = 1,000$, which is a four-digit number.
- I am a 4-digit whole number. My digits decrease by 2 from the thousands place to the ones place. Each of my digits is a prime number. What number am I?
8,642, since $8 - 2 = 6$; $6 - 2 = 4$; $4 - 2 = 2$.
- I am a whole number. When you add 3 to me you get a 2-digit number. That 2-digit number is the same as 3 four times. What number am I?
9, since $9 + 3 = 12$, and $3 \times 4 = 12$.
- I am a number less than 10. When I am divided by 2, half of that number is also 2. What number am I?
8, since $8 \div 2 = 4$, and $4 \div 2 = 2$.

Also available in print

Level 1 **Level 2** **Level 3**

4×4	5×7	11×8	6×7
11×8	12×6	12×7	9×6
9×6	4×8	12×8	12×6

Level 4 **Level 5** **Level 6**

You will find you are the first to get four connected rectangles, like $(9 \times 5) + (9 \times 7) = 66$. Play again!

Level 7 **Level 8** **Level 9**

$(7 \times 10) + (7 \times 1) = 77$	$(3 \times 7) + (2 \times 7) = 35$	$(9 \times 5) + (9 \times 7) = 66$	$(6 \times 1) = 66$
$(6 \times 7) + (6 \times 4) = 66$	$(5 \times 4) + (5 \times 7) = 55$	$(7 \times 7) + (7 \times 4) = 77$	$(12 \times 7) = 144$
$(7 \times 6) + (7 \times 6) = 84$	$(8 \times 4) + (8 \times 5) = 72$	$(12 \times 6) + (12 \times 6) = 144$	$(9 \times 4) + (9 \times 3) = 63$

Level 10 **Level 11** **Level 12**

You will find you are the first to get four connected rectangles, like $(9 \times 5) + (9 \times 7) = 66$. Play again!

counters.

- Students will then count the number of counters in each column and the number of counters in each row.
- Have students count the number of counters in each section.
- Students will then add $10 + 10$ or multiply 10×2 to get 20.

Report Back To check understanding, ask a student to repeat and complete this sentence: *The property you can use to break apart a problem into two simpler problems is the _____ (Distributive Property)*

Leveled Homework

Reteaching Master **1-4**

Name _____

3, 4, 6, 7, and 8 as Factors

You can use breaking apart to help find the product.

Example: How many baseball cards do you have if you have 4 packages with 6 cards in each package?

You need to find 4×6 .

4 groups of 6 are the same as 4 groups of 3 plus 4 groups of 3.

$4 \times 3 = 12$

$4 \times 3 = 12$

$4 \times 6 = (4 \times 3) + (4 \times 3)$

$= 12 + 12$

You have 24 baseball cards.

Use breaking apart to find each product.

1. $3 \times 5 = 15$

2. $9 \times 4 = 36$

3. $6 \times 6 = 36$

4. $3 \times 7 = 21$

5. $5 \times 7 = 35$

6. $8 \times 4 = 32$

7. $6 \times 7 = 42$

8. $7 \times 8 = 56$

Compare. Use $<$, $>$, or $=$ to fill in each \square .

9. $7 \times 4 \square 7 \times 5$

10. $6 \times 6 \square 3 \times 7$

11. $8 \times 3 \square 3 \times 8$

12. $9 \times 5 \square 12 \times 3$

13. Number Sense Explain how 9×4 can help you find 9×8 .

$9 \times 4 + 9 \times 4 = 9 \times 8$

$36 + 36 = 72$

$9 \times 8 = 72$

Practice Master **1-4**

Name _____

3, 4, 6, 7, and 8 as Factors

For 1 through 8, fill in each \square .

1. $3 \times 10 = (2 \times 10) + (1 \times 10)$

2. $2 \times 6 = (2 \times 5) + (2 \times 1)$

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

4. $11 \times 8 = (11 \times 5) + (11 \times 3)$

5. $3 \times 6 = (3 \times 1) + (3 \times 5)$

6. $6 \times 6 = (6 \times 2) + (6 \times 4)$

7. $7 \times 7 = (7 \times 4) + (7 \times 3)$

8. $1 \times 8 = (1 \times 5) + (1 \times 3)$

For 9 through 20, use breaking apart to find each product.

9. $5 \times 5 = 25$

10. $3 \times 6 = 18$

11. $4 \times 2 = 8$

12. $7 \times 3 = 21$

13. $7 \times 2 = 14$

14. $8 \times 6 = 36$

15. $7 \times 7 = 49$

16. $8 \times 7 = 42$

17. $8 \times 3 = 24$

18. $10 \times 6 = 60$

19. $6 \times 12 = 72$

20. $4 \times 6 = 24$

For 21 through 29, compare using $<$, $>$, or $=$ to fill in each \square .

21. $3 \times 4 \square 6 \times 1$

22. $5 \times 6 \square 6 \times 7$

23. $3 \times 6 \square 9 \times 2$

24. $8 \times 4 \square 7 \times 4$

25. $7 \times 5 \square 12 \times 3$

26. $5 \times 6 \square 3 \times 10$

27. $1 \times 8 \square 2 \times 3$

28. $4 \times 5 \square 2 \times 10$

29. $8 \times 6 \square 7 \times 7$

30. Candice has placed her seashells into 4 rows with 5 seashells in each row. How many seashells does she have? **20 seashells**

31. A chessboard has 8 rows and 8 columns. Each row has 4 white squares and 4 black squares. Which expression below would give you the number of black squares on a chessboard?

A. 8×8

B. 8×4

C. 4×4

D. $8 + 8$

32. Writing to Explain Using the breaking apart method, what is the best way to multiply 8 by 7?

Sample answer: Break 7 into 2 and 5 and multiply each piece by 8.

Moonbeam Multiplication **1-4**

Name _____

Earth is not the only planet that has a moon. Most of the other planets in our solar system also have moons. In many cases, they have more than one moon.

1. In 1810, Galileo discovered 4 moons orbiting Jupiter. By 1979, scientists had discovered that Jupiter has 4 times as many moons as Galileo saw. How many known moons did Jupiter have in 1979? **16 moons**

2. Mars has 2 known moons. By 1980, Saturn was known to have 9 times as many moons as Mars. How many known moons did Saturn have in 1980? **18 moons**

3. Until 1989, scientists had discovered only 2 moons of Neptune. Since then, scientists have found 4 times as many moons orbiting Neptune as they originally thought. How many known moons does Neptune have? **8 moons**

4. By 1999, Uranus was known to have 21 moons as many as Earth. How many known moons did Uranus have in 1999? **21 moons**

5. Suppose you go to soccer practice 5 days a week. How many days would you go to practice in 4 weeks? **20 days**

6. Suppose you work on homework 2 hours a day. How many hours would you work in 5 days? **10 hours**

7. A magazine costs \$3.00. How much would you pay for 6 magazines? **\$18.00**

8. A tray of muffins contains 2 cups of blueberries. How many cups of blueberries are in 3 trays? **6 cups**

Also available in print

Also available in print

Also available in print

Find a way to make equal groups.

- Find another way to make equal groups.
- Find a third way to make equal groups.
- Apply your group's results to putting 36 pennies into 6 groups.

Find a way to make equal groups.

- Find another way to make equal groups.
- Find a third way to make equal groups.
- Apply your group's results to putting 24 students into 4 groups.

Make up "Think Together" division problems for this lesson.

Challenge your classmates to work together to solve your problems.

Center Activity 1-6

Get 12 in all.

- Put 2 in each group.
- Put 4 in each group.
- Put 6 in each group.
- Put 3 in each group.

Get 24 in all.

- Put 3 in each group.
- Put 6 in each group.
- Put 4 in each group.
- Put 8 in each group.

Get 32 in all.

- Put 4 in each group.
- Put 8 in each group.
- Put 2 in each group.
- Put 16 in each group.

Make up "Think Together" division problems for this lesson.

Challenge your classmates to think together to solve your problems.

Center Activity 1-6

Have students make 3 groups one at a time until all 24 counters are used.

Next, have students take the 24 counters and divide them into groups of 3. Students should take 3 counters at a time from the group of 24 and put them into groups.

Have students count the groups. Ask students what the answer is.

Report Back To check understanding, ask a student to repeat and complete this sentence:
 [the number in each group].

Leveled Homework

Reaching Master 1-6

Name _____

Meanings of Division

When you divide, you separate things into equal groups.

Doris is making 8 box lunches, each with the same number of strawberries. She has a total of 32 strawberries. How many strawberries should go in each lunch?

What you think: Does she have to place an equal number of strawberries in each box? Show your work.

8 equal groups. How many strawberries are in each group?

What you show: 8 equal groups

○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○

32 strawberries divided into 8 separate groups leaves 4 strawberries in each group.

What you write: $32 \div 8 = 4$

32 is the dividend, the number that is being divided.
 8 is the divisor, the number the dividend is being divided by.
 4 is the quotient, or the answer to the division problem.
 Each lunch should have 4 strawberries.

Sample answers:

Draw pictures to solve each problem.

- You put 15 marbles into 3 groups.
 How many marbles are in each group?
 5 marbles
- You need to put 20 ice cubes into 5 glasses. How many cubes should go into each glass?
 4 cubes

Enrichment 1-6

Also available in print

Practice Master 1-6

Name _____

Meanings of Division

Students' drawings may vary.

- There are 12 small gift bags. Each bag can hold 1 box and 3 stickers is put in each bag. How many stickers will be in each bag?
 3 stickers
- One egg carton holds 12 eggs. How many cartons are you able to fill with 60 eggs?
 5 cartons
- There are 21 students in Mr. Terrier's class. The students divided themselves evenly into 3 groups. How many students are in each group?
 7 students
- Calvin read an 18-page chapter in his social studies book in 2 hours. If he read the same number of pages each hour, how many pages did he read per hour?
 A. 3 pages B. 6 pages C. 9 pages D. 12 pages
- Writing to Explain: A class is planning a party. A pizza restaurant cuts each pizza into 8 slices. There are 32 students. How many pizzas does the class need to order for each student to have a slice? Explain.
 4 pizzas; Sample answer: How many groups of 8 slices are needed to have 32? $32 \div 8 = 4$.

Center Activity 1-6

Also available in print

Enrichment 1-6

Name _____

Baby-Sitting in the Neighborhood

Jennifer baby-sits for some of the families in her neighborhood. She wants to decide how she can earn the most money. She has a chart that shows how long she usually baby-sits for a family and how much she is paid for her job.

Family	Hours	Amount Paid
Roberts	6	\$30
Robinsons	8	\$24
San Giacomo's	8	\$40
Lings	5	\$35
Oberlins	7	\$42

- Which family pays the most per hour? What is the hourly rate?
 The Lings pay the most per hour, \$7
- Which family pays the least per hour?
 The Robinsons pay the least per hour, \$4
- Which would pay more, 8 hours of baby-sitting for the Oberlins or 7 hours of baby-sitting for the San Giacomo's?
 8 hours of baby-sitting for the Oberlins would pay more: $8 \times 7 = \$56$ vs $7 \times 8 = \$56$
- On one Friday night, Jennifer is asked to baby-sit for two different families. The Robinsons need her for 2 hours, and the Lings want her to baby-sit for 5 hours. How much money should she take? How much will she earn?
 She should take the job with the Lings; \$28
- On a different Friday night, the Roberts offer Jennifer a 5-hour baby-sitting job with a \$4 tip, and the Robinsons offer Jennifer an 8-hour baby-sitting job. Which job should Jennifer take? How much more will she earn?
 Sample answer: Jennifer should take the job with the Robinsons; \$3 more

Center Activity 1-6

Also available in print

solve the problem. Then have the partner solve both equations and answer the question.

- Repeat the activity for the following problem. Have partners reverse roles.
- 27 students, 3 teachers
- How many times as many students as teachers?
- $3 \times ? = 27$

Display an array. Ask another student to write a multiplication fact, and the other facts that are in the same family.

Center Activity 1-7

Choose your own number. Display arrays for two different fact families for that number.

Center Activity 1-7

Partner Talk Listen for a description of each array in a fact family. For example, a student might say, "To show 4 times 7, I need 4 rows of 7, and to show 7 times 4, I need 7 rows of 4."

Leveled Homework

Repeating Master

Teaching 1-7

Multiplication and Division Comparison Problems

You can use drawings and a multiplication or division equation to solve comparison problems.

Samantha has 3 times as many fiction books as her cat. She has 21 fiction books. How many non-fiction books does she have?

What You Think: 31 books

fiction books: $7 \times 7 = 49$ fiction books
non-fiction books: $7 \times 7 = 49$ non-fiction books

What You Write: $7 \times 3 = 21$

Use many 3 lines of fiction books as many non-fiction books?
 $7 \times 3 = 21$

Samantha has 7 non-fiction books.

Draw a picture and write an equation to solve each problem.

- Teddy's shirt has 10 brown buttons and 2 orange buttons. How many buttons does his shirt have as orange buttons?
- Alicia is 12 years old. She is 2 times as old as her brother Jack. How old is Jack?

Check students' drawings.

$10 \div 2 = ?$ or $2 \times ? = 10$; 5 times as many

$12 \div 2 = ?$ or $? \times 2 = 12$; 6 years old

Check students' drawings.

Also available in print

Practice Master

Practice 1-7

Multiplication and Division Comparison Problems

For 1 through 4, write a multiplication equation or a division equation and solve.

- During one week, Nancy practiced her flute for 12 hours. She practiced 3 times as many hours as Ellen practiced her clarinet. For how many hours did Ellen practice her clarinet?
- The height of a plant in Ruth's backyard is 2 feet. A tree in her backyard is 14 feet tall. How many times as tall as the plant is the tree?
- A small pizza costs \$3. A large pizza costs 3 times as much as a small pizza. How much does the large pizza cost?
- The height of a bookshelf is 6 feet. The width of the bookshelf is 2 feet. How many times the width of the bookshelf is the height of the bookshelf?

What You Think: $12 \div 3 = ?$ or $3 \times ? = 12$; 4 hours

$7 \times 2 = 14$; 7 times as tall

$3 \times 3 = ?$; \$9

5. A pet store has 3 times as many dogs as cats. The store has 18 cats. How many dogs could you use to find how many cats are at the store?

A $18 \times 3 = 3$ B $3 - 7 = 18$ C $3 \times 7 = 18$ D $18 - 7 = 3$

6. Draw a picture. Alice's team uses 5 times as many white volleyballs for practice. His team uses 7 tan volleyballs. How many white volleyballs does his team use?

Check students' drawings.

35 white volleyballs

Also available in print

Just the Facts

Enrichment 1-7

Write each missing number. Then, write a related multiplication fact.

Missing Number

- $27 \div 9 = \underline{3}$
- $48 \div 6 = \underline{8}$
- $32 \div 8 = \underline{4}$
- $18 \div 3 = \underline{6}$
- $63 \div 9 = \underline{7}$

Related Fact

- $3 \times 9 = 27$
- $8 \times 6 = 48$
- $4 \times 8 = 32$
- $6 \times 3 = 18$
- $9 \times 7 = 63$

Check from the missing numbers you found above to make these sentences true.

- There are 6 pints in 3 quarts.
- There are 8 legs on an octopus.
- There are 7 days in a week.
- A baseball game lasts 9 innings.
- A dog has 4 legs.

Also available in print

- Circulate around the room and ask students how many counters they have in their group. Say the appropriate division fact aloud (e.g., $8 \div 1 = 8$).
- Next, have students divide their counters into however many groups they want. The groups must be equal. Ask students to draw a circle around each equal group.

1-2 **4** **8** **2** **6** **1** **4**

The number divided by 0

You cannot divide by 0

3

Play again! Think about how you find the quotient.

Center Activity 1-8

2 **4** **12 + 1** **10 + 0** **3 + 1** **6 + 6** **1**

The number divided by 0

Play again! Talk about your strategies as you play.

Center Activity 1-8

1-8 **Report Back** To check understanding, ask a student to repeat and complete this sentence: *When you divide two numbers and the quotient is 1, the two numbers [are the same]*

Leveled Homework

Reteaching Master Enrichment 1-8

Name _____

Special Quotients

There are special rules for dividing numbers by 1 and by 0.

Rule: A number divided by 1 is that number.

Examples: $4 \div 1 = 4$ $55 \div 1 = 55$

Rule: A number divided by itself (except 0) is 1.

Examples: $17 \div 17 = 1$ $135 \div 135 = 1$

Rule: Zero divided by a number (except 0) is 0.

Examples: $0 \div 4 = 0$ $0 \div 15 = 0$

Rule: You cannot divide a number by zero.

Examples: $7 \div 0$ cannot be done $12 \div 0$ cannot be done

1. $0 \div 2 = 0$ 2. $4 \div 4 = 1$

3. $0 \div 7 = 0$ 4. $9 \div 9 = 1$

5. $0 \div 3 = 0$ 6. $10 \div 10 = 1$

7. $0 \div 11 = 0$ 8. $11 \div 11 = 11$

Compare. Use $>$, $<$, or $=$ for each.

9. $6 \div 6 \text{ (} \ominus \text{)}$ $3 \div 3$

10. $7 \div 1 \text{ (} \text{>}$) $9 \div 8$

11. $0 \div 5 \text{ (} \text{<}$) $3 \div 1$

12. $0 \div 4 \text{ (} \text{=} \text{)}$ $0 \div 9$

13. $5 \div 5 \text{ (} \text{>}$) $0 \div 5$

14. $7 \div 7 \text{ (} \text{=} \text{)}$ $9 \div 9$

15. $8 \div 1 \text{ (} \text{>}$) $0 \div 8$

16. $9 \div 9 \text{ (} \text{<}$) $9 \div 1$

17. $0 \div 12 \text{ (} \text{<}$) $12 \div 1$

18. $0 \div 11 \text{ (} \text{=} \text{)}$ $0 \div 15$

19. Number Sense If $a \div 4 = 0$, what do you know about a ? **$a = 0$**

Also available in print

Practice Master Practice 1-8

Name _____

Special Quotients

1. $0 \div 10 = 0$ 2. $7 \div 1 = 7$ 3. $8 \div 8 = 1$

4. $9 \div 9 = 1$ 5. $0 \div 5 = 0$ 6. $5 \div 1 = 5$

7. $13 \div 4$ 8. $80 \div 0$ 9. $33 \div 1$ 10. $18 \div 6$

11. Number Sense If $x \div 9 = 1$, how do you know what x is? Explain.
 $x = 9$; Sample answer: Any number divided by itself equals 1.

12. Kenneth has 22 math problems to do for homework. He has 12 problems done. How many more problems does he have left to complete? 1 problem every minute, how long will it take to finish? **10; 10 min**

13. There are 8 people who would like to share a box of granola bars that contains 8 bars. How many granola bars does each person get if they share equally?
1 granola bar

14. Which is the quotient of $20 \div 20$?
A 20 B 2 C 1 D 0

15. Writing to Explain Write the rule that applies to the following number sentence: $0 \div 7 = 0$.
Sample answer: The rule for $0 \div 7 = 0$ is that when 0 is divided by any number (except 0) the answer is 0.

Also available in print

Analogy Master Enrichment 1-8

Name _____

Analogies

An analogy is often used to show the relationship between pairs of items.

1. How are the drawings of the rectangles related?
Sample answer: The rectangles are related by size, from larger to smaller.

2. How are the drawings of the triangles related?
Sample answer: The triangles are related by size, from larger to smaller.

3. Draw the missing item in the following analogies.

a. is to as is to .

b. is to as is to .

c. is to as is to .

d. is to as is to .

Also available in print

(e.g., $5 \times 4 = 20$, $4 \times 5 = 20$).
 • Then have students move around the corners of the triangle to create division facts.
 • Have the students write these facts next to the multiplication facts (e.g., $20 \div 4 = 5$, $20 \div 5 = 4$).

Center Activity 2 • 17

Play another game. Begin with the next question in the list. Or make up your own questions like these. Play the game with your questions.

12 ÷ 2 has the same quotient as 24. Divided by which number?	X	15 ÷ 3 has the same quotient as 20. Divided by which number?
36 ÷ 6 has the same quotient as 18. Divided by which number?	Y	63 ÷ 9 has the same quotient as 21. Divided by which number?
14 ÷ 2 has the same quotient as 2. Divided by which number?	Z	9 ÷ 3 has the same quotient as 12. Divided by which number?
28 ÷ 7 has the same quotient as 20. Divided by which number?		

Center Activity 3 • 18

Play another game. Begin with the next question in the list. Or make up your own questions like these. Play the game with your questions.

12 ÷ 2 has the same quotient as 24. Divided by which number?	X	15 ÷ 3 has the same quotient as 20. Divided by which number?
36 ÷ 6 has the same quotient as 18. Divided by which number?	Y	63 ÷ 9 has the same quotient as 21. Divided by which number?
14 ÷ 2 has the same quotient as 2. Divided by which number?	Z	9 ÷ 3 has the same quotient as 12. Divided by which number?
28 ÷ 7 has the same quotient as 20. Divided by which number?		

Report Back To check understanding, ask a student to repeat and complete this sentence: *When I multiply 33 by 7, you can use $B \times F = 33$ or $7 \times B = 56$ to help you.* [quotient]

Leveled Homework

Rethinking Master Rethinking 1-9

Using Multiplication Facts to Find Division Facts

The floor, Darren is having a tile floor in his bathroom for the floor is shown to the right.

First, use Darren's tile floor to write a multiplication story for $4 \times 8 = 32$.

Second, use Darren's tile floor to write a division story for $32 \div 4 = 8$.

Use the data in the table to write a multiplication or a division story for each number fact. Solve.

Sample answers are given.

Building Supplies	Number in a Box
Fasteners	4
Bolts	12

1. 6×4
 There are 6 fasteners in a box. How many fasteners are in 4 boxes? 24 fasteners.

2. $12 \div 4$
 There are an equal number of 4 sizes of bolts in each box of 12. How many of each size are in each box? 3 bolts of each size.

Practice Master Practice 1-9

Using Multiplication Facts to Find Division Facts

Solve.

1. $12 \div 3 = 4$ 7. $63 \div 9 = 7$
 2. $20 \div 5 = 4$ 8. $36 \div 4 = 9$
 3. $50 \div 10 = 5$ 9. $48 \div 6 = 8$
 4. $27 \div 9 = 3$ 10. $32 \div 8 = 4$
 5. $6 \div 2 = 3$ 11. $25 \div 5 = 5$
 6. $18 \div 8 = 2$ 12. $18 \div 2 = 9$

Use the data in the table to write a multiplication story for the number fact. Solve.

First Aid Kit	Number in Kit
Supply	6
Bandages	6
Chemical First Aid	6
Cotton Balls	12

13. $2 \times 6 =$ **Answers will vary. 12.**

14. Which is the quotient of $28 \div 7$?
 A 14 B 9 C 6 **D 4**

15. Writing to Explain Write a division story for 12 and 3.

Check students' stories.

Table That Rule Enrichment 1-9

Below are some tables. Dewey, Corne, and Isaac each try to guess the rule. If the rule is correct, write yes. If the rule is incorrect, write the correct rule. Complete each table.

1. Dewey says, "The rule for this table is divide by 4."

Dewey's Table	16	32	56	48	12	18	24	30	n
Table	B	16	32	24	6	9	12	15	$\frac{1}{2}$

The correct rule for the table is divide by 2.

2. Corne says, "The rule for this table is multiply by 2, then subtract 1."

Corne's Table	7	2	6	4	12	3	10	5	11	n
Table	13	3	11	7	23	5	19	9	21	$2n-1$

Yes

3. Isaac says, "The rule for this table is add 1."

Isaac's Table	2	9	6	4	3	5	8	7	9	n
Table	3	24	15	9	6	12	21	18	24	$3n-3$

The correct rule is multiply by 3, then subtract 3.

Also available in print

Also available in print

Also available in print

Picture It!

Draw pictures or bar diagrams to help you solve the problems below.

1. Mr. Byfield and Ms. Fuentes each have 18 students in their classes. Half of the students in Mr. Byfield's class are girls. There are 2 more girls in Ms. Fuentes' class than in Mr. Byfield's. How many girls are in Ms. Fuentes' class?
11 girls

2. There are 8 small containers of milk in a case. Travis had 5 cases of milk in his store. He sold 2 small containers. How many containers does Travis have now?
38 containers

3. A hotel is 7 stories high. Skyscraper A has 26 more stories than the hotel. Skyscraper B has 3 times as many stories as Skyscraper A. How many stories does Skyscraper B have?
38 stories

4. At the fourth-grade craft sale, Karen sold 6 postcards for \$4 each. Larry made 35 more than Karen selling bookmarks. How much did Larry make?
\$29

Practice Master

Practice 1-10

1. John went on a race. The race is 8 miles long. After two laps, John has run 7 miles. How many miles, m , does John have left to run?
 $8 \times 2 = m$; **16 miles**

2. Nicky's room has four sides and a perimeter of 48 feet. If 3 of the sides are 12 feet long, how long is the fourth side?
 $48 - 12 - 12 - 12 = f$; **12 feet**

3. Karen is 5 feet tall. In Karen's backyard there is an oak tree 4 times as tall as she is. How tall is the oak tree?
 $4 \times 5 = f$; **20 feet**

4. On Monday, Chris had \$250 in his savings account. On Friday, he spent \$15 at the store. On Saturday, he deposited \$30 in the bank. Which equation below shows how much money Chris has?
A. $250 + 15 + 120 = m$
B. $250 + 15 - 120 = m$
C. $250 - 15 - 120 = m$
D. $250 - 15 + 120 = m$

5. Melissa is making bookmarks from a piece of ribbon that is 12 inches long. Each bookmark is 4 inches long. She drew this picture to see how many bookmarks she could make from the ribbon. What did she do wrong?
She should have divided it into 3 pieces that were 4 in. long.

Partner Talk Listen for explanations that are related to choosing an operation.

Picture It!

Draw pictures or bar diagrams to help you solve the problems below.

1. John bought 2 pounds of ground beef. He used 3 pounds more than John. How many pounds of meat did Virginia buy?
5 pounds

2. There are 8 small containers of milk in a case. Travis had 5 cases of milk in his store. He sold 2 small containers. How many containers does Travis have now?
38 containers

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Leveled Homework

Problem Solving: Draw a Picture and Write an Equation

For 1 through 4, write an equation and solve. Use the picture to help.

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Also available in print

Also available in print

Also available in print

- squares.
- Guide students to continue the pattern by finding the next three shapes.
- Repeat the activity with a pattern that has four repeating elements.
- Next, have students work in pairs. Taking turns, one student in a pair starts a pattern, and the other finds the next three shapes.

Center Activity • 2-1

Make up a pattern with shapes. Ask your partner to continue the pattern.

Center Activity • 2-1

h, 1, 3, 4, 8, 2, 1, 3, 4, 8, 2, 1, 3.

a	b	c	d
e	f	g	h

Make up a pattern of numbers. Ask your partner to continue the pattern.

Partner Talk Listen for the phrase *part that repeats*. For example, a student might say, "In this pattern, the *part that repeats* has five shapes."

Leveled Homework

Reteaching Master Reteaching 2-1

Name _____

Repeating Patterns

Patterns can grow or patterns can repeat. Repeating patterns can use numbers or shapes. You can extend a pattern by finding a rule for the pattern.

Repeating Patterns with Numbers

Use this pattern.

4, 7, 3, 5, 4, 7, 3, 5, 4, 7, ...

What is the next number?

120

Extend the pattern until reaching the 120th number.

4, 7, 3, 5, 4, 7, 3, 5, 4, 7, 3, 5

The 120th number is 5.

2. What are the next three numbers in the pattern below?

5, 8, 3, 1, 5, 8, 3, 1, 5, 8

3, 1, 5

3. Explain it in the pattern in Exercise 2, how could you find the 15th number? What is that number?

Extend the pattern. I know the first 13 numbers. The 14th number is 8 and the 15th number is 3.

Also available in print

Practice Master Practice 2-1

Name _____

Repeating Patterns

Draw the next three shapes to continue the pattern.

1.

2.

Write the next three numbers to continue the pattern.

3. 4, 6, 2, 8, 4, 6, 2, 8, 4, ...

4. 3, 4, 5, 3, 3, 5, 3, 5, ...

3, 1, 3, 5

5. Draw a Picture What is the 120th shape in the pattern below?

6. Strategy Practice Perry has made a pattern of shapes on the bedroom walls. She drew a rectangle, 2 circles, a triangle, and she drew 24 circles. How many shapes did she draw in all?

36 shapes

7. Mrs. Washington placed students in a line. The order was 1 boy, 2 girls, 2 boys, and continued. Was the 10th student a boy or a girl?

boy

8. What is the 15th number in the pattern below?

3, 6, 5, 2, 3, 6, 5, 2, ...

A 2 B 3 C 5 D 6

Also available in print

Application Master Enrichment 2-1

Name _____

Line Patterns

Find the pattern in each group of lines. Then draw the next three lines to continue the pattern.

1.

2.

3.

4.

5.

6.

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