Lesson 52

Using Multiplication and Division Facts

Objectives
- Solve division problems using related multiplication facts.
- Write related multiplication and division sentences.
- Use problem-solving strategies to solve division word problems.

Books & Materials
- ***Math in Focus*** 2A
- ***Workbook*** 2A
- 40 counters
- Math Journal

Assignments
- ❑ Complete Warm-up.
- ❑ Read and complete pp. 179–185, ***Math in Focus*** 2A.
- ❑ Complete pp. 145–150, ***Workbook*** 2A.
- ❑ Write in your Math Journal.
- ❑ Complete Math Checkpoint.

Warm-up

Use what you know about multiplying by 2, 5, and 10 to solve the following multiplication problems.

1. **a.** 2 × 3 = _____ **c.** 2 × 10 = _____ **e.** 2 × 6 = _____
b. 2 × 5 = _____ **d.** 2 × 4 = _____ **f.** 2 × 8 = _____

2. **a.** 5 × 3 = _____ **c.** 5 × 5 = _____ **e.** 5 × 10 = _____
b. 5 × 6 = _____ **d.** 5 × 2 = _____ **f.** 5 × 7 = _____

3. **a.** 10 × 3 = _____ **c.** 10 × 5 = _____ **e.** 10 × 8 = _____
b. 10 × 2 = _____ **d.** 10 × 6 = _____ **f.** 10 × 4 = _____

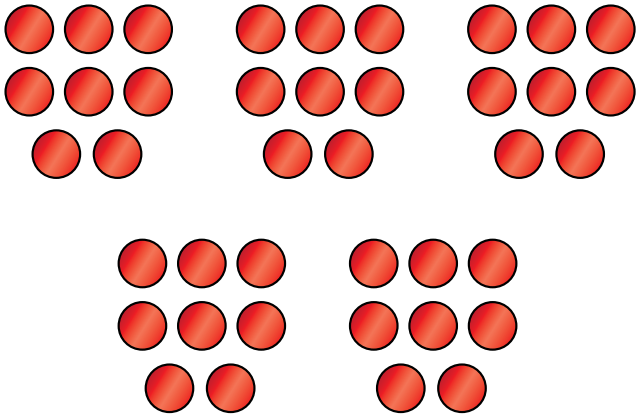
To the Learning Guide

Encourage your student to solve as many of the problems using mental math as possible. If she has difficulty, reiterate that numbers multiplied by 2 always end in an even number. Numbers multiplied by 5 always end in a 5 or a 0. Numbers multiplied by 10 always end in a 0. Your student may also use skip counting by 2s, 5s, or 10s to solve each problem.

Instruction

Count out 40 counters on your work space. Pretend you want to share them equally with 4 friends. You and your 4 friends make 5 people in all.

Divide the 40 counters into 5 equal groups.



There are 5 groups of counters. There are 8 counters in each group.

Write a multiplication sentence that shows this.

$5 \times 8 = 40$

Put the counters back together again. You have 40 counters.

Divide the counters into 5 equal groups again. You can write a division sentence that shows 40 counters divided into 5 groups.

Write this number sentence.

$40 \div 5 =$ _____

You can use what you know about $5 \times 8 = 40$ to solve $40 \div 5$. These two number sentences are in a fact family just like some addition and subtraction facts you know.

Both sentences use the numbers 5, 8, and 40. You can use a related multiplication fact to solve a division problem.

If $8 \times 5 = 40$, then $40 \div 5 = 8$.

Check your answer by counting the number of counters in each group. Do you have 8 counters in each group?

Using Related Multiplication Facts to Solve

Look at this problem.

$18 \div 2 =$ _____

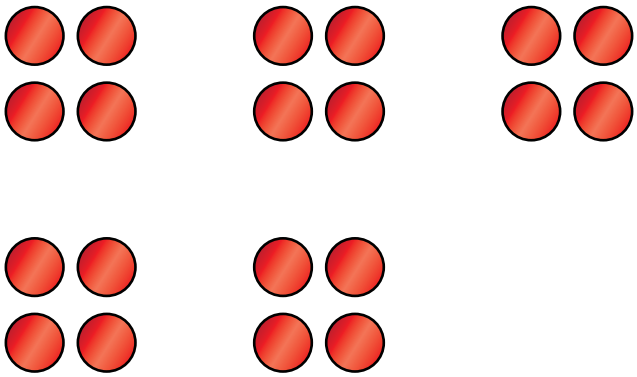
What related multiplication fact can help you solve this problem? Think of a fact that has 2 and 18.

$2 \times 9 = 18$, so $18 \div 2 = 9$.

Example 1: Making Equal Groups

You can also use related multiplication facts when you put things into equal groups.

Count out 20 counters.



Can you make 5 equal groups? How many are in each group?

20 ÷ 5 = _____

Think of a related multiplication fact that uses 20 and 5.

If 4 × 5 = 20, then 20 ÷ 5 = 4.

There are 4 counters in each of the 5 groups.

Example 2: Solving Word Problems

You can use related multiplication facts to solve word problems.

There are 25 people going to the park.
They are going to ride in vans. Each van holds 5 people.
How many vans do they need?

Write an answer sentence.

They need _____ vans.

Use your counters to model the problem. There are 25 people that need to be divided into groups of 5.

Write the number sentence.

25 ÷ 5 = _____

What related multiplication fact can help you solve the problem?

5 × 5 = 25, so 25 ÷ 5 = 5.

They need 5 vans.

To the Learning Guide

Using counters and the examples, guide your student to see that division is the opposite of multiplication. If additional practice is needed in finding the related multiplication facts, have your student skip count the piles of counters.

Point out the difference between the first and second examples. In the first, your student shares the counters between a specific number of piles and then finds the number of items in the pile. In the second, she places a specific number of items in each group and finds the number of groups.

Practice

Read and complete pp. 179–185 in ***Math in Focus***. Then complete pp. 145–150 in ***Workbook***. Complete the **Math Journal** items in your Math Journal.

To the Learning Guide

These problems emphasize the inverse relationship between multiplication and division. Help your student to see how the objects in each problem are grouped by modeling each problem with counters.

If your student is has difficulty determining the related multiplication facts, have her skip count the objects in the pictures or the counters. Spend some time practicing the 2s, 5s, and 10s multiplication facts if she cannot solve most of the facts using mental math.

Wrap-up

You can use related multiplication facts to help you solve division problems.

20 ÷ 2 = _____

Since 2 × 10 = 20, then 20 ÷ 2 = 10.

You can use related multiplication facts to solve word problems.

Ella has 16 bows. She wants to tie 2 on each of her stuffed animals. How many stuffed animals will get bows?

16 ÷ 2 = _____

Since 2 × 8 = 16, then 16 ÷ 2 = 8.

Eight stuffed animals will get bows.

✅ Complete Math Checkpoint

LESSON 6

Divide Using Related Multiplication Facts

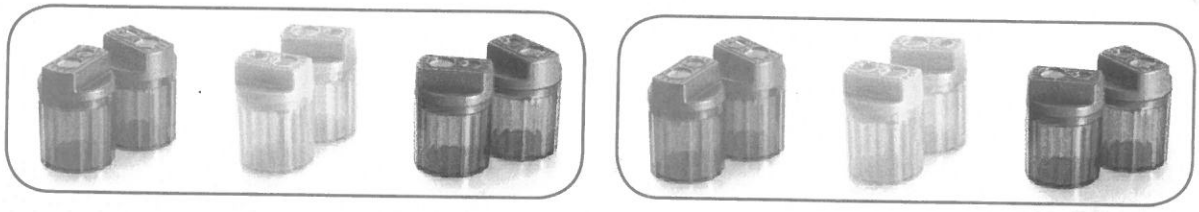
Lesson Objectives

- Use related multiplication facts to find related division facts.
- Write a multiplication sentence and a related division sentence.
- Solve division word problems.

Learn

You can use related multiplication facts to help you divide when you share equally.

Divide 12 sharpeners into 2 equal groups.
How many sharpeners are in each group?



$12 \div 2 = ?$

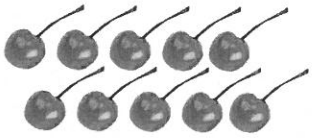
6 sharpeners are in each group.

$6 \times 2 = 12$
So, $12 \div 2 = 6$.

Guided Practice

Find the missing numbers.
Use related multiplication facts to help you divide.

1. 5 children share 10 cherries equally.
How many cherries does each child get?



$10 \div 5 =$ ____

Each child gets ____ cherries.

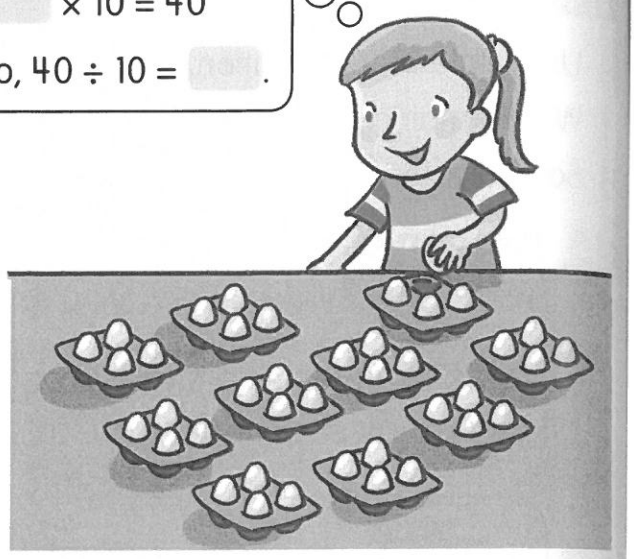
____ $\times 5 = 10$
So, $10 \div 5 =$ ____.

2 Kelly puts 40 eggs equally on 10 trays.
How many eggs are on each tray?

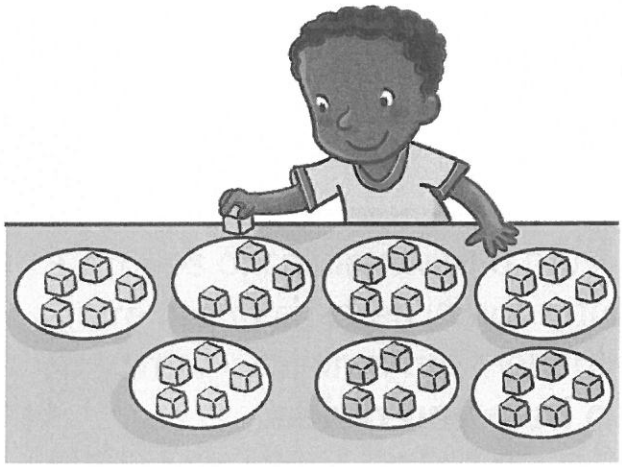
$40 \div 10 =$ ____

____ eggs are on each tray.

____ $\times 10 = 40$
So, $40 \div 10 =$ ____.



Learn **You can use related multiplication facts to help you divide when you put things in equal groups.**



Divide 35 cubes into equal groups.
There are 5 cubes in each group.
How many groups are there?

$35 \div 5 = ?$

There are 7 groups.

$7 \times 5 = 35$
So, $35 \div 5 = 7$.

Guided Practice

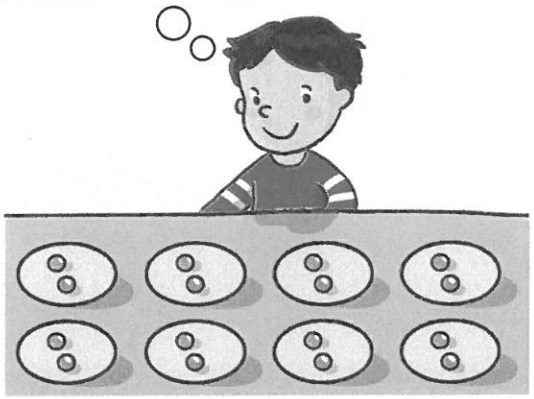
Use related multiplication facts to find the missing numbers.

3 Divide 16 marbles into equal groups.
There are 2 marbles in each group.
How many groups are there?

$16 \div 2 = ?$

There are ____ groups.

____ $\times 2 = 16$
So, $16 \div 2 =$ ____.



4 Ned has 20 crackers.
He puts them equally onto plates.
He puts 10 crackers on each plate.
How many plates of crackers are there?

$20 \div 10 = ?$

There are ____ plates of crackers.

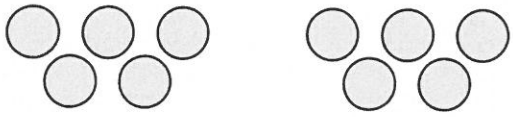
____ $\times 10 = 20$
So, $20 \div 10 =$ ____.

Learn You can write multiplication sentences and related division sentences.

Darren has 10 counters.

He puts them in groups of 5.

He writes a multiplication sentence and a related division sentence.



$2 \times 5 = 10$

$10 \div 5 = 2$

He then puts the counters in groups of 2.

He writes a multiplication sentence and a related division sentence.

$5 \times 2 = 10$

$10 \div 2 = 5$

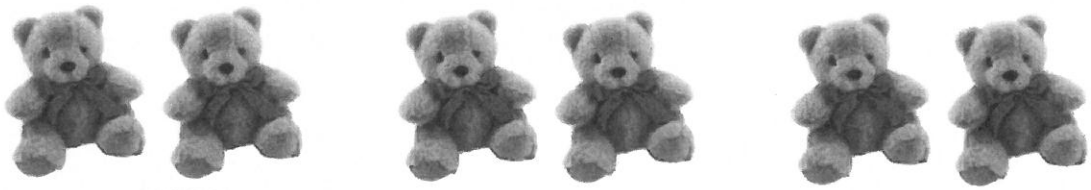
$2 \times 5 = 10$ $10 \div 5 = 2$ $5 \times 2 = 10$ $10 \div 2 = 5$

These number sentences are related facts.

Guided Practice

Use related multiplication facts to find the missing numbers.

5



$3 \times 2 =$ ____ $2 \times 3=$ ____

____ $\div 2 =$ ____ ____ $\div 3 =$ ____

Use related multiplication facts to solve.

6. Sally puts 20 apples equally into 5 boxes.
How many apples are in each box?

7. Lily has a box of 80 beads.
She uses 10 beads to make one bracelet.
How many bracelets can she make with the box of beads?

8. Maria puts 14 cubes equally into 2 bags.
How many cubes are in each bag?

9. Bernard puts 10 marbles equally into 2 groups.
How many marbles are in each group?

Let's Explore!

Ethan has fewer than 12 chopsticks.
He decides to put them all into groups.
This is what he finds.

First he puts 2 chopsticks in each group.
No chopsticks are left.

Then he puts 5 chopsticks in each group.
No chopsticks are left.

How many chopsticks does Ethan have?

Let's Practice

Use related multiplication facts to find the missing numbers.

1. $20 \div 2 =$ ____

2. $80 \div 10 =$ ____

$2 \times$ ____ $= 20$

____ $\times 10 = 80$

Divide.

3. $45 \div 5 =$ ____

4. $50 \div 10 =$ ____

Use related multiplication facts to find the missing numbers.

5	$4 \times 2 = 8$	$2 \times 4 =$ ____	$8 \div 2 =$ ____	$8 \div 4 =$ ____
6	$7 \times 5 = 35$	$5 \times 7 =$ ____	$35 \div 5 =$ ____	$35 \div 7 =$ ____
7	$9 \times 10 = 90$	$10 \times 9 =$ ____	$90 \div 10 =$ ____	$90 \div 9 =$ ____

Find the missing number.
Then, write a related multiplication sentence and two related divisi
sentences for the multiplication sentences.

8. ____ $\times 5 = 20$

   $20 \div$ ____ $=$ ____

   ____ $\times$ ____ $= 20$

   $20 \div$ ____ $=$ ____

9. ____ $\times 10 = 60$

   $60 \div$ ____ $=$ ____

   ____ $\times$ ____ $= 60$

   $60 \div$ ____ $=$ ____

Use related multiplication facts to solve.

10 Grandma shares 12 apples equally among her grandchildren.
Each grandchild gets 2 apples.
How many grandchildren are there?

11 Shara has 18 meatballs.
She puts an equal number of meatballs on 2 plates.
How many meatballs are on each plate?

12 Raja divides 25 chairs equally among 5 tables.
How many chairs are at each table?

13 Mom makes 50 granola bars.
She packs them into bags of 5.
How many bags of granola bars are there?

14 The second grade class goes on a bus trip.
There are 40 children in the class.
Each bus can seat 10 children.
How many buses do they need in all?

15 Sharon picks 90 apples from 10 trees.
She picks the same number of apples from each tree.
How many apples does Sharon pick from each tree?

ON YOUR OWN

Go to Workbook A:
Practice 6, pages 145–150