

Name \_\_\_\_\_

### Numerical Expressions

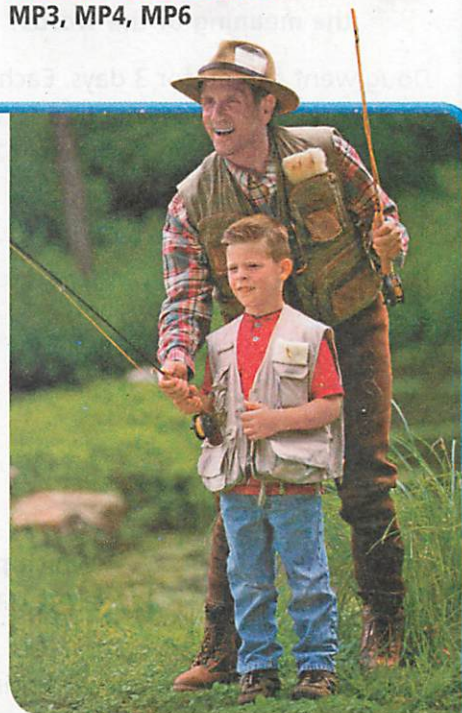
**Essential Question** How can you use a numerical expression to describe a situation?

Common Core

Operations and Algebraic Thinking—5.OA.A.1, 5.OA.A.2


**MATHEMATICAL PRACTICES**  
MP3, MP4, MP6

### Unlock the Problem



A **numerical expression** is a mathematical phrase that has numbers and operation signs but does not have an equal sign.


Tyler caught 15 small bass, and his dad caught 12 small bass in the Memorial Bass Tourney in Tidioute, PA. Write a numerical expression to represent how many fish they caught in all.

 Choose which operation to use.

You need to join groups of different sizes, so use addition.

$$\begin{array}{ccc}
 15 \text{ small bass} & \text{plus} & 12 \text{ small bass} \\
 \downarrow & & \downarrow \\
 15 & + & 12
 \end{array}$$

So,  $15 + 12$  represents how many fish they caught in all.

 **Example 1** Write an expression to match the words.

**A Addition**

Emma has 11 fish in her aquarium. She buys 4 more fish.

$$\begin{array}{ccc}
 \text{fish} & \text{plus} & \text{more fish} \\
 \downarrow & & \downarrow \\
 11 & + & 4
 \end{array}$$

**B Subtraction**

Lucia has 128 stamps. She uses 38 stamps on party invitations.

$$\begin{array}{ccc}
 \text{stamps} & \text{minus} & \text{stamps used} \\
 \downarrow & & \downarrow \\
 128 & - & \underline{\hspace{2cm}}
 \end{array}$$

**C Multiplication**

Karla buys 5 books. Each book costs \$3.

$$\begin{array}{ccc}
 \text{books} & \text{multiplied by} & \text{cost per book} \\
 \downarrow & & \downarrow \\
 \underline{\hspace{2cm}} & \times & \underline{\hspace{2cm}}
 \end{array}$$

**D Division**

Four players share 52 cards equally.

$$\begin{array}{ccc}
 \text{cards} & \text{divided by} & \text{players} \\
 \downarrow & & \downarrow \\
 \underline{\hspace{2cm}} & \div & \underline{\hspace{2cm}}
 \end{array}$$

**Math Talk**

**MATHEMATICAL PRACTICES 4**

What does the expression model in each example?

**Expressions with Parentheses** The meaning of the words in a problem will tell you where to place the parentheses in an expression.

**Example 2** Which expression matches the meaning of the words?

Doug went fishing for 3 days. Each day he put \$15 in his pocket. At the end of each day, he had \$5 left. How much money did Doug spend by the end of the trip?

**Think:** Each day he took \$15 and had \$5 left. He did this for 3 days.

$(\$15 - \$5)$  ← **Think:** What expression can you write to show how much money Doug spends in one day?

$3 \times (\$15 - \$5)$  ← **Think:** What expression can you write to show how much money Doug spends in three days?



**MATHEMATICAL PRACTICES 3**

Explain how the expression of what Doug spent in three days **compares** to the expression of what he spent in one day?

**Example 3** Which problem matches the expression  $\$20 - (\$12 + \$3)$ ?

Kim has \$20 to spend for her fishing trip. She spends \$12 on a fishing pole. Then she finds \$3. How much money does Kim have now?

List the events in order.

First: Kim has \$20.

Next: \_\_\_\_\_

Then: \_\_\_\_\_

Do these words match the expression? \_\_\_\_\_

Kim has \$20 to spend for her fishing trip. She spends \$12 on a fishing pole and \$3 on bait. How much money does Kim have now?

List the events in order.

First: Kim has \$20.

Next: \_\_\_\_\_

Then: \_\_\_\_\_

Do these words match the expression? \_\_\_\_\_

**Share and Show**



Circle the expression that matches the words.

1. Teri had 18 worms. She gave 4 worms to Susie and 3 worms to Jamie.

$(18 - 4) + 3$

$18 - (4 + 3)$

2. Rick had \$8. He then worked 4 hours for \$5 each hour.

$\$8 + (4 \times \$5)$

$(\$8 + 4) \times \$5$

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**Write an expression to match the words.**

3. Greg drives 26 miles on Monday and 90 miles on Tuesday.

\_\_\_\_\_

**Write words to match the expression.**

5.  $34 - 17$

\_\_\_\_\_

\_\_\_\_\_

4. Lynda has 27 fewer fish than Jack. Jack has 80 fish.

\_\_\_\_\_

6.  $6 \times (12 - 4)$

\_\_\_\_\_

\_\_\_\_\_

**Math Talk**

**MATHEMATICAL PRACTICES 6**

Is  $4 \times 8 = 32$  an expression? Explain why or why not.

**On Your Own**

**Write an expression to match the words.**

7. José shared 12 party favors equally among 6 friends.

\_\_\_\_\_

9. Isabelle bought 12 bottles of water at \$2 each.

\_\_\_\_\_

8. Braden has 14 baseball cards. He finds 5 more baseball cards.

\_\_\_\_\_

10. Monique had \$20. She spent \$5 on lunch and \$10 at the bookstore.

\_\_\_\_\_

**Write words to match the expression.**

11.  $36 \div 9$

\_\_\_\_\_

\_\_\_\_\_

12.  $35 - (16 + 11)$

\_\_\_\_\_

\_\_\_\_\_

**Draw a line to match the expression with the words.**

13. Fred catches 25 fish. Then he releases 10 fish and catches 8 more. •

Nick has 25 pens. He gives 10 pens to one friend and 8 pens to another friend. •

Jan catches 15 fish and lets 6 fish go. •

Libby catches 15 fish and lets 6 fish go for three days in a row. •

•  $3 \times (15 - 6)$

•  $15 - 6$

•  $25 - (10 + 8)$

•  $(25 - 10) + 8$

