

# Equation Detectives

Turn words into one-step equations.

GRADE 6 • 6.PFA.3.e

**6.PFA.3.e** "Write a one-step linear equation in one variable to represent a verbal situation, including those in context."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## MATCH THE RELATIONSHIP

Let  $x$  stand for the unknown amount. Use words such as plus, minus, times, shared equally, and is to choose operations and place an equal sign. Write an equation that shows the relationship in the situation.

## WORKED EXAMPLE

A number minus 14 is 21. Write a one-step equation.

1. Let  $x$  represent the number.
2. "Minus 14" means  $x - 14$ .
3. "Is 21" means  $= 21$ .

**Answer:  $x - 14 = 21$**

## PRACTICE 6 problems

- 1** A number plus 9 equals 30. Write a one-step equation.

**ANSWER** \_\_\_\_\_

- 2** Forty-six is a number minus 12. Write a one-step equation.

**ANSWER** \_\_\_\_\_

- 3** A number times 7 is 56. Write a one-step equation.

**ANSWER** \_\_\_\_\_

- 4** A number split equally among 6 groups gives 11 in each group. Write a one-step equation.

**ANSWER** \_\_\_\_\_

- 5** Thirty-nine is 3 times a number. Write a one-step equation.

**ANSWER** \_\_\_\_\_

- 6** A number decreased by 16 equals 25. Write a one-step equation.

**ANSWER** \_\_\_\_\_

## APPLY IT Show your work

- 1** Mia has  $x$  dollars. Her aunt gives her \$13, and Mia then has exactly \$28, the cost of a game she wants. Write a one-step equation.

WORK SPACE

ANSWER \_\_\_\_\_

- 2** Seven students each pay  $x$  dollars for a rental pass at a skating rink. Together, they pay \$35. Write a one-step equation.

WORK SPACE

ANSWER \_\_\_\_\_

## CHALLENGE One step up

### CHALLENGE

A team scored 63 points. After  $x$  points were removed because of a scoring error, 9 points remained. Write two different one-step equations that represent the situation. Then explain why both equations work.

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## PART 1 • PRACTICE

| # | PROBLEM                                                                                  | ANSWER        |
|---|------------------------------------------------------------------------------------------|---------------|
| 1 | A number plus 9 equals 30. Write a one-step equation.                                    | $x + 9 = 30$  |
| 2 | Forty-six is a number minus 12. Write a one-step equation.                               | $x - 12 = 46$ |
| 3 | A number times 7 is 56. Write a one-step equation.                                       | $7x = 56$     |
| 4 | A number split equally among 6 groups gives 11 in each group. Write a one-step equation. | $x / 6 = 11$  |
| 5 | Thirty-nine is 3 times a number. Write a one-step equation.                              | $3x = 39$     |
| 6 | A number decreased by 16 equals 25. Write a one-step equation.                           | $x - 16 = 25$ |

## PART 2 • APPLY IT

1.  $x + 13 = 28$  Let  $x$  represent the money Mia had before her aunt gave her money. Add 13 to her starting amount to equal 28.
2.  $7x = 35$  Let  $x$  represent the cost of one rental pass. Seven equal pass costs total 35 dollars.

## CHALLENGE

**$63 - x = 9$  and  $x + 9 = 63$ . The first equation subtracts the removed points from the original score. The second equation shows that the removed points plus the remaining points equal the original score.**

Accept equivalent equations with sides reversed or terms reordered, such as  $30 = x + 9$ . For the challenge, accept both  $63 - x = 9$  and  $x + 9 = 63$ , as well as equivalent forms such as  $9 = 63 - x$ .