

A **two-step equation** contains $_2$ two operations.

- ▶ **Two-step equations** require $_3$ two **inverse operations** to solve for the **variable**.
- ▶ To keep an equation **balanced**, **inverse operations** must be done on both sides of the equations.
- ▶ The **solution** is the value of the variable that makes the equation true.

multiplication

$$2x + 3 = 7$$

addition

division

$$\frac{x}{4} - 5 = 1$$

subtraction

	$2 \bullet m + 2 = 8$	
Inverse Operation	$\quad -2 \quad -2$	Balance
	<hr style="width: 50%; margin: 0 auto;"/>	
	$2m + 0 = 6$	
Inverse Operation	$\quad \underline{2} \quad \underline{2}$	Balance
	$m = 3$	

	$2 \bullet m + 2 = 8$	
Inverse Operation	$\quad -2 \quad -2$	Balance
	<hr style="width: 50%; margin: 0 auto;"/>	
	$2m + 0 = 6$	
Inverse Operation	$\quad \underline{2} \quad \underline{2}$	Balance
	$m = 3$	Solution

	$2m + 2 = 8$
Solution	$2(3) + 2 = 8$
m = 3	$6 + 2 = 8$
	$8 = 8 \quad \checkmark$

	$2m + 2 = 8$
NOT a Solution	$2(2) + 2 = 8$
m = 2	$4 + 2 = 8$
	$6 \neq 8 \quad \times$

CFU

Which of the following is an example of a two-step equation? Explain.

- A** $5x = 6$ **B** $5x - 4 = 6$ **C** $x - 4 = 6$

Which two inverse operations would be used to solve the equation $5x - 4 = 6$? Explain.

- A** **addition and multiplication** **B** **addition and division**

What is the difference between a solution and not a solution?

In your own words, what is a two-step equation?

1. Isolate the variable.
2. Solve for the variable. (inverse operation)
3. Check and interpret the solution.

1. $5m + 15 = 25$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

2. $3b + 6 = -18$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

3. $2k - 9 = -21$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

4. $4d - 7 = 5$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

1. Isolate the variable.
2. Solve for the variable. (inverse operation)
3. Check and interpret the solution.

5. $\frac{c}{6} + 1 = -1$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

6. $\frac{v}{4} + 8 = 9$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

7. $\frac{x}{2} - 3 = -2$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

8. $\frac{t}{5} - 6 = -3$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

Skill Closure

1. Isolate the variable.
2. Solve for the variable. (inverse operation)
3. Check and interpret the solution.

1. $9w + 11 = 56$

Check:**Interpret:**

The inverse operations used to solve this problem are

The value of the variable is _____

2. $7g - 6 = 50$

Check:**Interpret:**

The inverse operations used to solve this problem are

The value of the variable is _____

Concept Closure

Writing



Which two inverse operations would be used to solve the equation? Explain your answer.

$$\frac{x}{10} - 7 = 5$$

Summary Closure

What did you learn today about solving two-step equations?

Word Bank

two-step equation
inverse operation
solution
isolate

1. Isolate the variable.
2. Solve for the variable. (inverse operation)
3. Check and interpret the solution.

1. $-5x + 9 = 44$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

2. $3x - 12 = -3$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

3. $\frac{z}{3} + 2 = -5$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

4. $\frac{d}{12} - 9 = -11$

Check:

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

Listening 

Listen to the problem. Solve, check and interpret the solution.

1. $2b + 2 = 6$

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____

2. $\frac{a}{2} + 4 = 12$

Interpret:

The inverse operations used to solve this problem are

The value of the variable is _____



Read the problem. Solve, check and interpret the solution.

On Saturday, Janice bought five new books. On Monday, half of all her books were lost in a fire. On Tuesday, there were only 17 left. How many did she have to start with?

1. $\frac{b}{2} + 5 = 17$

Interpret:

The inverse operations used to solve this problem are _____

The value of the variable is _____

For a field trip, 4 students rode in cars and the rest fit into nine buses. How many students were in each bus if 382 students were on the trip?

2. $9s + 4 = 382$

Interpret:

The inverse operations used to solve this problem are _____

The value of the variable is _____

Writing 

Describe and correct the error each problem has.

$$1. \quad \begin{array}{r} 6b + 7 = 331 \\ +7 \quad +7 \\ \hline \frac{6b}{6} + 0 = \frac{338}{6} \\ b = \frac{169}{3} \end{array}$$

$$2. \quad \begin{array}{r} 4e + 5 = 25 \\ -5 \quad -5 \\ \hline 4 \cdot 4e \quad 0 = 20 \cdot 4 \\ e = 80 \end{array}$$
