

A **one-step equation** contains one operation.

$$x + 2 = 3$$

Operation
addition

$$x - 12 = 8$$

Operation
subtraction

A **one-step equation** contains **one operation**.

- ▶ **One-step equations** require one **inverse operation** to solve for the **variable**.
- ▶ To keep an equation **balanced**, **inverse operations** must be done on both sides of the equation.

$$x + 2 = 5$$

Inverse
operation

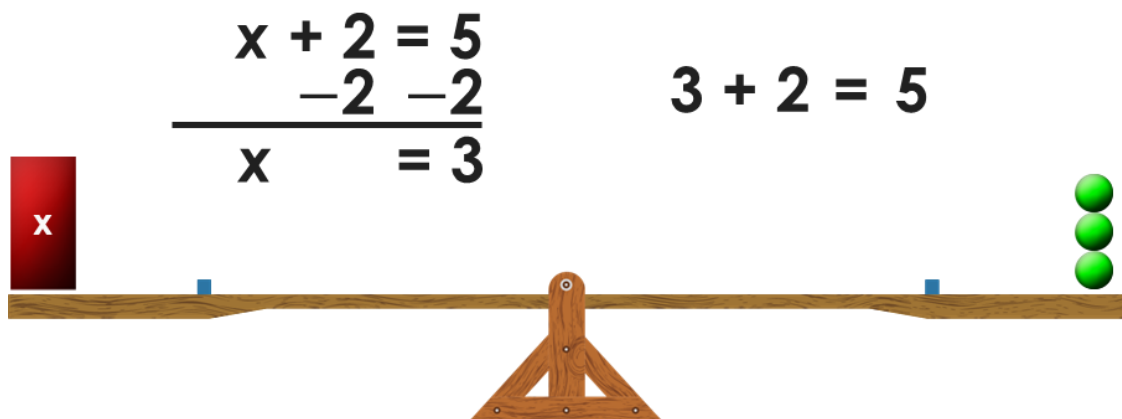
$$- 2 = 2$$

Balance

$$x + 0 = 3$$

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$$\begin{array}{l}
 x + 2 = 5 \\
 \text{Inverse operation } \underline{-2 \quad -2} \quad \text{Balance} \\
 x + 0 = 3
 \end{array}$$

Solution $x + 2 = 5$
 $x = 3$ $(3) + 2 = 5$
 $5 = 5$ ✓

NOT a Solution $x + 2 = 5$
 $x = 4$ $(4) + 2 = 5$
 $6 \neq 5$ ✗

1. Read the equation.
2. Determine the inverse operation.
3. Solve for the variable.
4. Check and interpret the solution. "The value of ___ is ___."

1

$$k + 5 = 6$$

2

$$g + 14 = 16$$

3

$$p - 9 = 13$$

4

$$s - 10 = 22$$

1. Read the equation.
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4. Check and interpret the solution. "The value of __ is __."

5 Isabella is baking muffins. The recipe calls for 8 cups of sugar. Isabella has already added 3 cups of sugar. How many more cups of sugar does she need to add?

$$c + 3 = 8$$

6 Yesterday, Samuel had \$7. He was given more money today and now has \$10. How much money was Samuel given today?

$$m + 7 = 10$$

7 Shannon had some money in her pocket. She spent \$4 for school supplies. She now has \$11. How much money did she have at the start?

$$c - 4 = 11$$

8 Jessie had a box with marbles. He lost 5 of them during a game and now has 8. How many marbles did Jessie start with?

$$m - 5 = 8$$

Skill Closure

1. Read the equation.
2. Determine the inverse operation.
3. Solve for the variable.
4. Check and interpret the solution. "The value of ___ is ___."

1

$$w + 25 = 32$$

2

$$h - 70 = 19$$

Concept Closure

Writing



Write an explanation. Read the passage. Explain why the student's solution is incorrect.

Sam is trying to solve the equation. After applying one inverse operation, his solution was $m = 8$. Explain why his solution is incorrect and what possible error he may have made.

Sam's solution

$$m + 2 = 6$$

$$m = 8$$

Read the equation. Determine the inverse operation. Solve for the variable. Check the solution.

1.

$$q + 3 = 9$$

2.

$$h + 25 = 52$$

3.

$$m - 6 = 12$$

4.

$$w - 27 = 16$$

5. Angelina needs to save \$20. She has already saved \$9. How much more money does Angelina need to save?

$$m + 9 = 20$$

6. Norman had brought some baseball trading cards to his friend's house. He gifted 7 to his friend. Norman now has 18. How many baseball trading cards did Norman bring to his friend's house?

$$c - 7 = 18$$

Listening



Listen to the word problems. Answer the questions.

1

$$f + 2 = 6$$

Gabriel needs to add _____ cups of flour.

2

$$c - 8 = 14$$

Louisa started with _____ coins.

3

$$p + 105 = 288$$

Marisol has _____ pages left to read.

4

$$p - 45 = 29$$

There were _____ pencils originally.

Look at the problem. Answer the questions.

$$p + 105 = 288$$

Which of the following statements are true?

- | | | | |
|----------|--|-----|----|
| a | The inverse operation used to solve this problem is subtraction ($-$). | Yes | No |
| b | The meaning of the solution to this problem is the number of pages read. | Yes | No |
| c | The meaning of the solution to this problem is the number of pages left to read. | Yes | No |
| d | The first step in solving the equation is to subtract 288 to both sides of the equation. | Yes | No |
| e | The solution to the equation is 183. | Yes | No |

Reading



Solve one-step word problems.

1 Aika wants to save \$100. She already has \$28 in her piggy bank. How much more does she need?

$$m + 28 = 100$$

3 Mrs. Dunbar's class has 31 children in it. Elsa counted 18 girls in the class. Which equation represents Mrs. Dunbar's class?

A $b - 18 = 31$

B $b + 18 = 31$

C $b - 31 = 18$

D $b + 31 = 18$

Solve and interpret the correct equation.

2 Amadi has a certain number of minutes to use the computer. He has used 32 minutes already. If he can only use the computer for 28 additional minutes, how many minutes of computer time did he have?

$$t - 32 = 28$$

4 The library has a particular number of computers. Nine are being used and 11 are available for students to use. How many computers does the library have altogether? Which equation represents the computers in the library?

A $c - 11 = 9$

B $c + 11 = 9$

C $c - 9 = 11$

D $c + 9 = 11$

Solve and interpret the correct equation.

Reading

Read the word problem. Answer the questions.

Sonia has a certain score in a video game. After a mistake, she lost 310 points. She has 600 points left. How many points did she start with?

Which of the following statements are true?

- | | | | |
|----------|---|-----|----|
| a | The inverse operation used to solve this problem is addition (+). | Yes | No |
| b | The meaning of the solution to this problem is how many points she has earned. | Yes | No |
| c | The meaning of the solution to this problem is how many points she had to begin with. | Yes | No |
| d | The first step in solving the equation is to add 600 to both sides of the equation. | Yes | No |
| e | The solution to the equation is 910. | Yes | No |

Writing



Read the problem. Explain the answer.

1. Estevan finished the English portion of the homework in 30 minutes and the math portion in 32 minutes. He worked out how long it took him to finish all his homework. Is he correct? Explain.

$$\begin{array}{r}
 m - 30 = 32 \\
 + 30 \quad + 32 \\
 \hline
 m = 64
 \end{array}$$

Solve the problems. Explain what is different about solving the two problems.

2. $a + 80 = 101$

3. $k - 223 = 17$