

Name: _____

SOLVING I-STEP EQUATIONS: ADDITION & SUBTRACTION

Remember...

An _____ is a math sentence that has an **equal sign (=)**.

An _____ is a math sentence that **does not** have an **equal sign (=)**.

A _____ is the unknown (usually a _____).

A _____ is known (usually a _____).

Inverse Operations

If you do the opposite (aka: _____), an operation “un-does” itself.

Inverse of $+$ is ...	
Inverse of $-$ is ...	
Inverse of \times is ...	
Inverse of \div is ...	
Inverse of a^2 is...	
Inverse of \sqrt{a} is...	

Examples:

John has x apples. If he adds 5 apples to his pile, he will have 8 apples.
What is the value of x ?

Write an equation:

$$\begin{array}{r} x + 5 = 8 \\ - 5 = -5 \\ \hline x = 3 \end{array}$$

Answer: John had 3 apples before he added to his pile.

Check: $3 + 5 = 8$

Maddie has x dollars. After spending \$90 on a purse, she will have \$45. What is the value of x ?

Write an equation:

$$\begin{array}{r} x - 90 = 45 \\ + 90 = +90 \\ \hline x = 135 \end{array}$$

Answer: Maddie had \$135 before she bought the purse.

Check: $135 - 90 = 45$

YOUR TURN!

1. $x + 2 = 10$

$$\begin{array}{r} \square \quad \square \\ \hline x + 0 = \square \end{array}$$

Check:

2. $y - 8 = 15$

$$\begin{array}{r} \square \quad \square \\ \hline y - 0 = \square \end{array}$$

Check:

3. $a + 9 = 2$

$$\begin{array}{r} \square \quad \square \\ \hline a + 0 = \square \end{array}$$

Check:

CAN YOU DO IT WITHOUT THE BOXES?

1) $x + 7 = 18$

2) $a - 15 = 22$

3) $83 = y - 17$

4) $c - 3 = 6$

5) $x + 8 = 18$

6) $y - 5 = 4$

7) $6 + z = 10$

8) $p - 5 = 15$

9) $4 + m = 12$

10) $g + 44 = 50$

11) $x - 9 = 2$

12) $a + 10 = 17$

Does it matter which side of the equal sign the variable is on?

YES

NO

Complete the following questions; make sure to check your answers!

1. $x + 2 = 8$

2. $y + 7 = 9$

3. $a + 5 = 12$

4. $16 = n + 6$

5. $q + 10 = 22$

6. $m + 9 = 17$

7. $b - 4 = 9$

8. $8 = c - 4$

9. $11 = t - 7$

10. $d - 10 = 8$

11. $x - 11 = 9$

12. $2 = z - 14$

13. $72 = 24 + w$

14. $86 + y = 99$

15. $6 + y = -8$