

Addition + Subtraction Equations

The solution to an equation is the value of the variable that makes the equation true.

Ex. $10 - x = 5$

4 is NOT a solution to this equation because 4 does NOT make the equation true.

5 is a solution because

5 does make the equation true.

Ex $x + 27 = 14$

To solve an addition equation, we "undo" the addition by using the inverse operation which is subtraction.

$$\begin{array}{r} \boxed{x} + 27 = 14 \\ -27 \quad -27 \\ \hline x = -13 \end{array}$$

Subtract 27 from BOTH sides.

How do we check our solution?

Substitute back into the original equation:

$$\begin{array}{r} x + 27 = 14 \\ -13 + 27 \stackrel{?}{=} 14 \\ 14 = 14 \end{array} \begin{array}{l} \text{substitute} \\ -13 \text{ for } x \\ \text{yes so our} \\ \text{solution is correct} \end{array}$$

Ex $\boxed{x} - 15 = 28$ add 15
 $\quad +15 \quad +15$ to both

 sides
 $x = 43$

Let's check:

$x - 15 = 28$
 $43 - 15 \stackrel{?}{=} 28$
 $28 = 28$ yes so our
solution is
correct.