

## Warm Up

Solve and check each of the equations below.

$$\frac{x}{4} = -3$$

Handwritten solution in red ink:

$$\frac{x}{4} = -3$$

~~$\times 4$~~   ~~$\times 4$~~

$$x = -12$$



$$-2 = 3 + x$$

Handwritten solution in blue ink:

$$-2 = 3 + x$$

~~$-3$~~   ~~$-3$~~   $\downarrow$

$$\boxed{-5 = x}$$



## Solving Two-Step Equations

When we solve equations, we use INVERSE OPERATIONS to move things to the other side, and we do PE<sup>MA</sup>DS in the reverse order.

Example:

$$\begin{array}{r} 2x - 4 = 26 \\ +4 \quad +4 \\ \hline 2x = 30 \\ \frac{2x}{2} = \frac{30}{2} \\ x = 15 \end{array}$$

Justification:

1. Addition Property of Equality
2. Division Property of Equality

$$\begin{array}{r}
 5x - 4 = 12 \\
 \hline
 5x = 16 \\
 \hline
 x = 3.2
 \end{array}$$

Check:

$$\begin{array}{l}
 5(3.2) - 4 = 12 \\
 12 = 12 \checkmark
 \end{array}$$



$$\begin{array}{r}
 \frac{1}{2}x + 4 = 6 \\
 \hline
 \frac{1}{2}x = 2 \\
 \hline
 x = 4
 \end{array}$$

$$2 \div \frac{1}{2}$$

$$2 \div (1/2)$$

4

4



$$\frac{x}{2} + 4 = 6$$



$$0.2x + 1.2 = 4.4$$

$$2x + 6 = 10$$



$$8x - 3 = 21$$

$$2x + 12 = 44$$



$$-6x + 3 = 35$$

$$9 = \frac{x}{9} + 7$$



$$3 = 5 + \frac{x}{2}$$

Warm Up  
 $-3x + 7 = 21$

Solve and check each of the equations below.

$$-x - 6 = 13$$

**Do it now!**

Sometimes **'later'** becomes **never.**