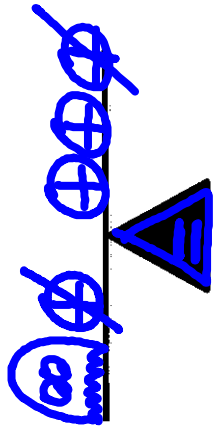


# Hands On Equations

Name \_\_\_\_\_

- Draw the equation
- Solve the equation with the pieces.
- Write down the steps used.



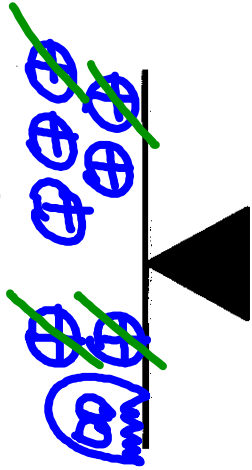
$$x + 1 = 3$$

$$\frac{-1 - 1}{x = 2}$$



$$x - 1 = 4$$

$$\frac{+1 + 1}{x = 5}$$



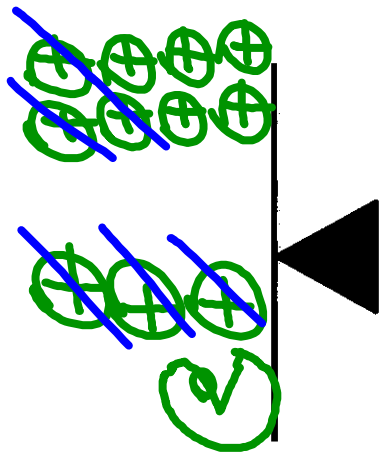
$$x + 2 = 5$$

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



$$x - 3 = 1$$

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



$$x + 3 = 8$$

$$\frac{-3 - 3}{x = 5}$$



$$x - 2 = 6$$

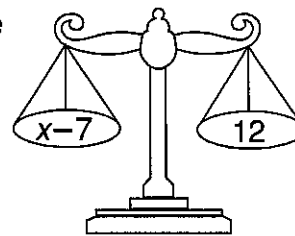
$$\frac{+2 + 2}{x = 8}$$

**LESSON**

**Reteach**

**1-11 Addition and Subtraction Equations**

Solving an equation is like balancing a scale. If you add the same weight to both sides of a balanced scale, the scale will remain balanced. You can use this same idea to solve an equation.



Think of the equation  $x - 7 = 12$  as a balanced scale. The equal sign keeps the balance.

|              |                      |                      |
|--------------|----------------------|----------------------|
| $-7 + 7 = 0$ | $x - 7 = 12$         |                      |
|              | $x - 7 + 7 = 12 + 7$ | Add 7 to both sides. |
|              | $x + 0 = 19$         | Combine like terms.  |
|              | $x = 19$             |                      |

When you solve an equation, the idea is to get the variable by itself. What you do to one side of the equation, you must do to the other side.

- To solve a subtraction equation, use addition.
- To solve an addition equation, use subtraction.

Solve and check:  $y + 8 = 14$ .

|              |                      |                             |
|--------------|----------------------|-----------------------------|
| $+8 - 8 = 0$ | $y + 8 = 14$         |                             |
|              | $y + 8 - 8 = 14 - 8$ | Subtract 8 from both sides. |
|              | $y + 0 = 6$          | Combine like terms.         |
|              | $y = 6$              |                             |

**Check:**  $y + 8 = 14$  To check, substitute 6 for  $y$ .  
 $6 + 8 \stackrel{?}{=} 14$   
 $14 \stackrel{?}{=} 14$  ✓

A true sentence,  $14 = 14$ , means the solution is correct.

Solve and check. *c.  $10 - 2 = 8$  ✓*

1.  $x - 2 = 8$

$$\begin{array}{r} +2 +2 \\ \hline x = 10 \end{array}$$

2. *c.  $6 + 5 = 11$*

$$\begin{array}{r} b + 5 = 11 \\ -5 -5 \\ \hline b = 6 \end{array}$$

3.  $n + 8 = 11$

$$\begin{array}{r} -8 -8 \\ \hline n = 3 \\ 3 + 8 = 11 \end{array}$$

4.  $y - 6 = 2$

$$\begin{array}{r} +6 +6 \\ \hline y = 8 \\ 8 - 6 = 2 \end{array}$$

5.  $a - 9 = 4$

$$\begin{array}{r} +9 +9 \\ \hline a = 13 \\ 13 - 9 = 4 \end{array}$$

6.  $m + 2 = 18$