

### Partner/Group Activity

- Decide who goes first.
- Write statement a) on your group's whiteboard.
- Explain whether or not that particular statement is true or false when  $w = 1$
- Ask your group members if they agree or disagree with you.
- Discuss the problem until you all come to an agreement.
- Record your decision. Be prepared to share your group's thoughts with the class.
- Give the whiteboard to another group member.
- Repeat this process until you are finished with all eight statements below.

If  $w = 1$  which of the following statements would be true?

a)  $w + 2 = 3$

b)  $w + 2 > 3$

c)  $w + 2 \geq 3$

d)  $w + 2 \leq 3$

e)  $w + 2 < 3$

f)  $w + 2 = 4$

g)  $w + 2 < 4$

h)  $w + 2 > 4$

### SOLUTIONS/EXPLANATION

If  $w = 1$  which of the following would be true?

a)  $w + 2 = 3$   
 $1 + 2 = 3$   
 $3 = 3$   
3 is equal to 3  
TRUE

b)  $w + 2 > 3$   
 $1 + 2 > 3$   
 $3 > 3$   
3 is greater than 3  
FALSE

c)  $w + 2 \geq 3$   
 $1 + 2 \geq 3$   
 $3 \geq 3$   
3 is greater than OR equal to 3  
TRUE

d)  $w + 2 \leq 3$   
 $1 + 2 \leq 3$   
 $3 \leq 3$   
3 is less than OR equal to 3  
TRUE

e)  $w + 2 < 3$   
 $1 + 2 < 3$   
 $3 < 3$   
3 is less than 3  
FALSE

f)  $w + 2 = 4$   
 $1 + 2 = 4$   
 $3 = 4$   
3 is equal to 4  
FALSE

g)  $w + 2 < 4$   
 $1 + 2 < 4$   
 $3 < 4$   
3 is less than 4  
TRUE

h)  $w + 2 > 4$   
 $1 + 2 > 4$   
 $3 > 4$   
3 is greater than 4  
FALSE

## Solutions to Equations and Inequalities

**Solution** - the value or values that make an equation or inequality true



Is  $m = 4$  a solution to  $5m + 10 > 7m - 2$  ?

### To determine if a given value is a solution:

1. Substitute the given value into the equation or inequality

$$5m + 10 > 7m - 2 \quad \text{is } m = 4 \text{ a solution?}$$

$$5(4) + 10 > 7(4) - 2$$

2. Simplify the expression on either side of the equation or inequality

NOTE: the  $>$ ,  $<$ , or  $=$  sign **separates** the 2 sides (2 expressions)

$$\boxed{5(4) + 10} > \boxed{7(4) - 2}$$

$$5(4) + 10 \quad 7(4) - 2$$

$$20 + 10 \quad 28 - 2$$

$$30 > 26$$

3. Determine if the simplified expressions satisfy the equal sign or inequality symbol

$$30 > 26$$

30 is greater than 26