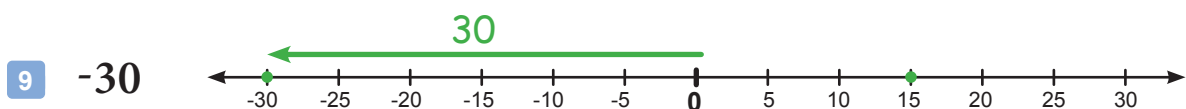
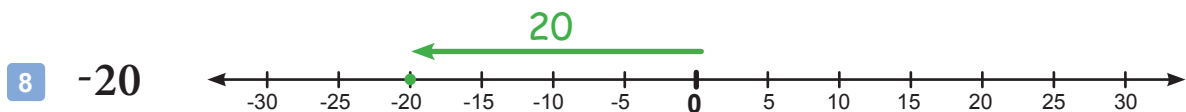
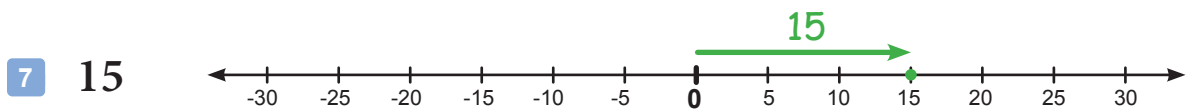
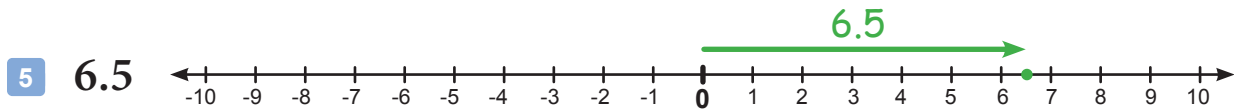
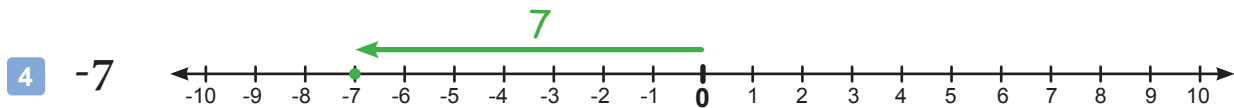
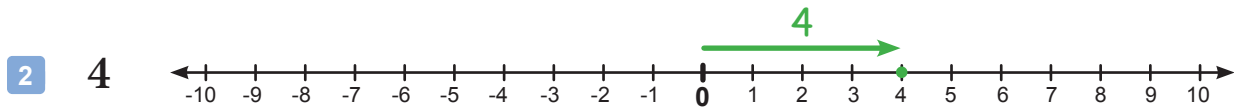
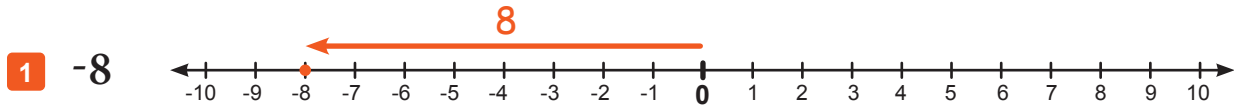


Absolute Value as Distance from Zero

AV 1

Instructions: Plot each number below on the number line. Then draw a vector from zero to that number. Write the vector's magnitude (length) above it. This is the Absolute Value of the number which is its distance from zero.



Absolute Value

AV 2

Instructions: Evaluate these Absolute Values.

1 $|-12| = 12$

2 $|6 - 4| = 2$

3 $|1 - 5| = 4$

4 $|2 + 2| = 4$

5 $|-9| = 9$

6 $|-1 + -1| = 2$

7 $|-3| = 3$

8 $|0 - 3| = 3$

9 $|6 + -1| = 5$

10 $|8 - 9| = 1$

11 $|-2.5| = 2.5$

12 $|0.5| = 0.5$

13 $|100| = 100$

14 $|\frac{1}{2}| = \frac{1}{2}$

15 $|3.75| = 3.75$

16 $|1+2-10| = 7$

17 $|1 - 1| = 0$

18 $|-5 + -9| = 14$

Absolute Value as Distance Between Two Numbers

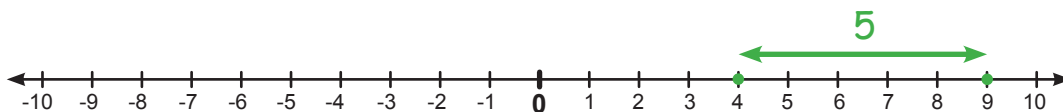
AV 3

Instructions: Plot the two numbers in these subtraction problems on the number line. Then show that the Absolute Value of the difference is the **distance** between the two numbers.

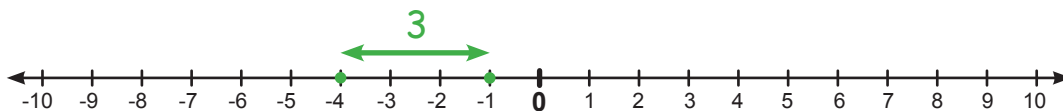
1 $|5 - -2| = 7$



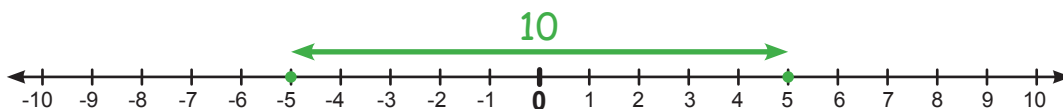
2 $|9 - 4| = 5$



3 $|-4 - -1| = 3$



4 $|-5 - 5| = 10$



Instructions: Prove that these equations are true.

1 $|8 - 2| = |2 - 8|$

$|6| = |-6|$

$6 = 6$

2 $|1 - 6| = |6 - 1|$

$|-5| = |5|$

$5 = 5$

3 $|-2 - 1| = |1 - -2|$

$|-3| = |3|$

$3 = 3$

4 $|-3 - -4| = |-4 - -3|$

$|1| = |-1|$

$1 = 1$

Absolute Value Expressions - Set 1

AV 4

Instructions: Simplify these expressions involving Absolute Value. Remember not to confuse the Absolute Value signs with the parentheses.

1 $|-2| + (-3)$

$$2 - 3$$

$$-1$$

2 $-|-2| \cdot 4$

$$-2 \cdot 4$$

$$-8$$

3 $4 - |4|$

$$4 - 4$$

$$0$$

4 $|7| + |-3|$

$$7 + 3$$

$$10$$

5 $|-8| - |-5|$

$$8 - 5$$

$$3$$

6 $(-4) + |-10|$

$$-4 + 10$$

$$6$$

7 $(-2) \cdot |-4|$

$$-2 \cdot 4$$

$$-8$$

8 $(-1 + |-6|)$

$$-1 + 6$$

$$5$$

9 $5 \cdot |1-3|$

$$5 \cdot 2$$

$$10$$

10 $\frac{|8|}{|-2|} \cdot \frac{8}{2}$

$$4$$

11 $9 + |-8|$

$$9 + 8$$

$$17$$

12 $-|-5| \cdot |-4|$

$$-5 \cdot 4$$

$$-20$$

13 $|\frac{1}{2}| \cdot 12$

$$\frac{1}{2} \cdot 12$$

$$6$$

14 $|1-5| \cdot |5-8|$

$$4 \cdot 3$$

$$12$$

15 $\frac{-|5|}{|-5|} \cdot \frac{-5}{5}$

$$-1$$

Absolute Value Expressions - Set 2

AV 5

Instructions: Simplify these expressions involving Absolute Value. Remember not to confuse the Absolute Value signs with the parentheses.

$$\begin{aligned} 1 \quad & -|3| \cdot |-3| \\ & -3 \cdot 3 \\ & (-9) \end{aligned}$$

$$\begin{aligned} 2 \quad & 12 + |4| \\ & 12 + 4 \\ & (16) \end{aligned}$$

$$\begin{aligned} 3 \quad & |-8| + (-6) \\ & 8 - 6 \\ & (2) \end{aligned}$$

$$\begin{aligned} 4 \quad & 7 + |-7| \\ & 7 + 7 \\ & (14) \end{aligned}$$

$$\begin{aligned} 5 \quad & -|-1| \cdot |-9| \\ & -1 \cdot 9 \\ & (-9) \end{aligned}$$

$$\begin{aligned} 6 \quad & \frac{|15|}{|-5|} \cdot \frac{15}{5} \\ & \quad \quad \quad (3) \end{aligned}$$

$$\begin{aligned} 7 \quad & |-2| - |-10| \\ & 2 - 10 \\ & (-8) \end{aligned}$$

$$\begin{aligned} 8 \quad & -(-6) + |-1| \\ & 6 + 1 \\ & (7) \end{aligned}$$

$$\begin{aligned} 9 \quad & |5| - |-5| \\ & 5 - 5 \\ & (0) \end{aligned}$$

$$\begin{aligned} 10 \quad & |6-7| \cdot |8-4| \\ & 1 \cdot 4 \\ & (4) \end{aligned}$$

$$\begin{aligned} 11 \quad & \frac{-|-6|}{|-2|} \cdot \frac{-6}{2} \\ & \quad \quad \quad (-3) \end{aligned}$$

$$\begin{aligned} 12 \quad & |-\frac{1}{4}| \cdot 4 \\ & \frac{1}{4} \cdot 4 \\ & (1) \end{aligned}$$

$$\begin{aligned} 13 \quad & (-2 + |-7|) \\ & -2 + 7 \\ & (5) \end{aligned}$$

$$\begin{aligned} 14 \quad & 8 \cdot |1-4| \\ & 8 \cdot 3 \\ & (24) \end{aligned}$$

$$\begin{aligned} 15 \quad & (-9) \cdot |-7| \\ & -9 \cdot 7 \\ & (-63) \end{aligned}$$