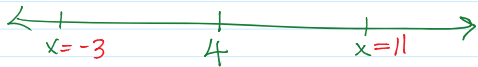


what does it mean???

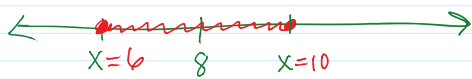
$$|x - 4| = 7$$

The distance between x and 4 is 7.



$$|x - 8| \leq 2$$

The distance between x and 8 is less than or equal to 2.



$$6 \leq x \leq 10$$

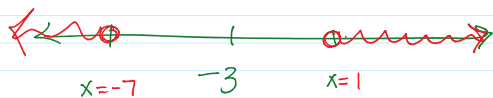
$$[6, 10]$$

LESS THAN

GREATOR

$$|x + 3| > 4$$

The distance between x and -3 is greater than 4.



$$x > 1 \text{ OR } x < -7$$

$$(-\infty, -7) \cup (1, \infty)$$

Simplify:

$$1. \quad |\sqrt{6} - 10|$$

$$\begin{aligned} \sqrt{4} < \sqrt{6} < \sqrt{9} \\ 2 < \sqrt{6} < 3 \\ \rightarrow &= 10 - \sqrt{6} \end{aligned}$$

$$2. \quad |12 - \sqrt{7}|$$

$$= 12 - \sqrt{7}$$

$$3. \quad |6 - \sqrt{50}|$$

$$\sqrt{50} - 6$$

$$4. \quad |10 - \sqrt{65}|$$

$$= 10 - \sqrt{65}$$

$$= 5\sqrt{2} - 6$$

Solve for x:

$$5. |5x - 1| = 8$$

$$5x - 1 = 8 \text{ or } 5x - 1 = -8$$

$$5x = 9$$

$$5x = -7$$

$$x = 9/5$$

$$x = -7/5$$

$$6. 3 + 2|6 - 3(4x + 1)| = 17$$

$$3 + 2|6 - 12x - 3| = 17$$

$$3 + 2|-12x + 3| = 17$$

$$2|-12x + 3| = 14$$

$$|-12x + 3| = 7$$

$$-12x + 3 = 7 \text{ or } -12x + 3 = -7$$

$$-12x = 4$$

$$-12x = -10$$

$$x = -1/3$$

$$x = 5/6$$

$$7. |42 - 8x| = -10$$

No solution

$$8. |\frac{1}{5}x + 1| = 2x - 3$$

$$\frac{1}{5}x + 1 = 2x - 3$$

$$\text{or } \frac{1}{5}x + 1 = -(2x - 3)$$

$$\frac{1}{5}x = 2x - 4$$

$$\frac{1}{5}x + 1 = -2x + 3$$

$$-\frac{9}{5}x = -4$$

$$\frac{11}{5}x = 2$$

$$x = 4 \cdot \frac{5}{9} = \frac{20}{9}$$

$$x = \frac{10}{11}$$

Inequalities

9. Write an inequality including absolute value that has No solution as an answer.

10. Write an inequality including absolute value that has All Real #s as an answer.

Solve for x:

11. $|18 - 2(3 + x)| > 4$

12. $|18 - 2(3 + x)| < 4$

13. $\sqrt{x^2} = x$ True or False??

14. $\sqrt{(2-3x)^2} > 8$