



Sec 1.6.5 Absolute Value Equations



$$|x|=6$$

$$x=6 \quad \& \quad x=-6$$

$$|2x-3|=11$$

$$2x-3=11$$

$$2x=14$$

$$x=7$$

$$2x-3=11$$

$$2x=-8$$

$$x=-4$$

...absolute value...distance from zero...always positive

$$5|1 - 4x| - 15 = 0$$

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

$$|1 - 4x| = 3 \text{ or } |1 - 4x| = -3$$

$$-4x = 2$$

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

$$-4x = -4$$

$$x = 1$$

$$-\frac{1}{2}|x + 6| - 4 = 0$$

$$-\frac{1}{2}|x + 6| = 4$$

$$|x + 6| = -8$$

no
solution

Two absolute value expressions are equal to each other...

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

$$|4x + 7| = |2x - 5|$$

$$4x + 7 = 2x - 5$$

$$4x + 7 = -(2x - 5)$$

$$2x = -12$$

$$4x + 7 = -2x + 5$$

$$x = -6$$

$$6x = -2$$

$$x = -\frac{1}{3}$$

Suggested Practice

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61-77 odds
105,106, 111, 112

$$61. \pm 8$$

$$63. -5, 9$$

$$65. -2, 3$$

$$67. -\frac{5}{3}, 3$$

$$69. \pm \frac{2}{5}$$

$$71. -\frac{4}{5}, 4$$

$$73. \cancel{}$$

$$75. \frac{1}{2}$$

$$77. -1, 3$$

$$105. 5.4 \text{ feet}$$

$$106. 2.9 \text{ feet}$$

$$111. 149 \text{ million km}$$

$$112. 58 \text{ million km}$$