# Abs Value

– usually have 2 solutions

$|x| = 7$

$x = 7$ OR $x = -7$

$|x+4| = 3$

$x+4 = 3$ $\quad$ $x+4 = -3$

$x = -1$ $\quad$ $x = -7$

$2|3x-1|+5 = 13$

$2|3x-1| = 8$

$|3x-1| = 4$

$3x-1 = 4$ OR $3x-1 = -4$

$3x = 5$ $\quad$ $3x = -3$

$x = 5/3$ OR $x = -1$

1) Isolate the Abs Value

2) Write & solve 2 equations

$|2x-7| = -8$

No sol.

$|4x-1| = |2x-3|$

$4x-1 = 2x-3$ OR $4x-1 = -2x+3$

$2x = -2$ $\qquad \frac{6x}{6} = \frac{4}{6}$

$x = -1$ OR $x = 2/3$

Check!

$|4(-1)-1| = |2(-1)-3|$

$|-5| = |-5|$

$5 = 5$

$|4(2/3)-1| = |2(2/3)-3|$

$|8/3 - 1| = |4/3 - 9/3|$

$|5/3| = |-5/3|$

$3 + 4|2x+5| \leq 15$

$-3 \quad -3$

$\frac{4|2x+5|}{4} \leq \frac{12}{4}$

$|2x+5| \leq 3$

$2x+5 \leq 3$ AND $2x+5 \geq -3$

$2x \leq -2$ $\cap$ $2x \geq -8$

$x \leq -1$ $\quad x \geq -4$


$[-4, -1]$

Less THAND } when isolated

GREAT OR

$|2x+5| < -3$

$\emptyset$

$|2x+5| > -4$

$\mathbb{R}$

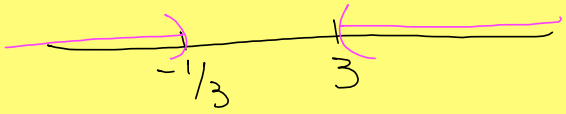
$(-\infty, \infty)$

$$5 - 6|4-3x| < -25$$
$$-5 \qquad\qquad -5$$
$$\frac{-6|4-3x|}{-6} < \frac{-30}{-6}$$
$$|4-3x| > 5$$

$4-3x > 5$ OR $4-3x < -5$

$-1 > 3x$ $\cup$ $9 < 3x$

$-\frac{1}{3} > x$ $\qquad 3 < x$




$(-\infty, -\frac{1}{3}) \cup (3, \infty)$