Absolute Value Inequalities

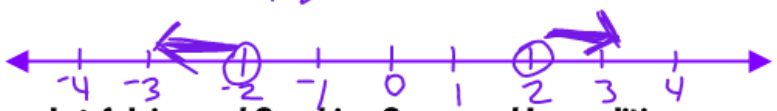
absolute value	Decode
Definition the distance a # is from 0 * always positive except 0	Example $\|-2\| = 2$ $\|7\| = 7$

Think, Pair Share.

What possible answer(s) will make the following statement true?

$|d| > 2$

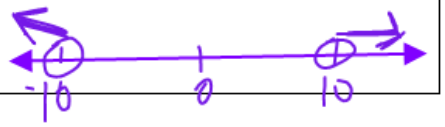
keep same $d > 2$ or $d < -2$ KFC



Example 1: Solving and Graphing Compound Inequalities

Solve and graph each of the inequalities.

I Do	We Do
$\|x\| > 3$ $x > 3$ or $x < -3$	$\|t\| > 10$ $t > 10$ or $t < -10$



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Example 2: Solving and Graphing Inequalities

Solve and graph each of the inequalities.

$>$ $\geq$ or

$<$ $\leq$ and

I Do	We Do
$\lvert 2k \rvert > 8$ $\frac{2k > 8}{2}$ $\frac{2k < -8}{2}$ $k > 4$ or $k < -4$ -4 0 4	$\lvert s + 4 \rvert > 2$ $s+4 > 2$, -4 -4 $s+4 < -2$, -4 -4 $s > -2$ or $s < -6$ -6 -4 -2

We Do	You Do
$\lvert 3x - 6 \rvert \geq 3$ $3x - 6 \geq 3$, $+6$ $+6$ $3x - 6 \leq -3$, $+6$ $+6$ $\frac{3x \geq 9}{3}$ $\frac{3x \leq 3}{3}$ $x \geq 3$ or $x \leq 1$ 0 1 2 3 4	$\lvert 2k + 3 \rvert < 5$ $2k+3 < 5$, -3 -3 $2k+3 > -5$, -3 -3 $\frac{2k < 2}{2}$ $\frac{2k > -8}{2}$ $k < 1$ and $k > -4$ -4 -3 -2 -1 0 1

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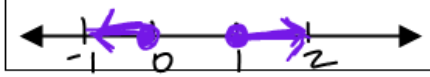
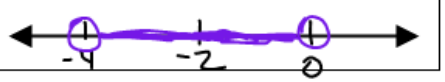
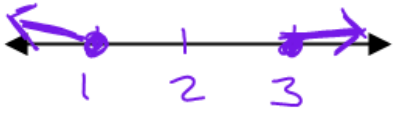
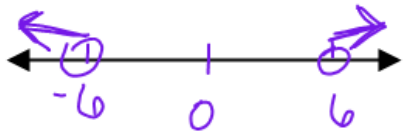
You Do	You Do
$\lvert 2w - 1\rvert \geq 1$ K F C $2w-1\geq 1$ $\quad$ $2w-1\leq -1$ $+1\ \ +1$ $\quad$ $+1\ \ +1$ $\frac{2w}{2}\geq\frac{2}{2}$ $\quad$ $\frac{2w}{2}\leq\frac{0}{2}$ $w\geq 1$ or $w\leq 0$ 	$\lvert\frac{1}{2}k+1\rvert < 1$ $\frac{1}{2}k+1<1$ $\quad$ $\frac{1}{2}k+1>-1$ $-1\ \ -1$ $\quad$ $-1\ \ -1$ $\frac{1}{2}k<0\cdot 2$ $\quad$ $\frac{1}{2}k>-2\cdot 2$ $k<0$ and $k>-4$ 
You Do	You Do
$\lvert t-2\rvert \geq 1$ $t-2\geq 1$ $\quad$ $t-2\leq -1$ $+2$ $\quad$ $+2$ $t\geq 3$ or $t\leq 1$ 	$\lvert 2t\rvert > 12$ $\frac{2t}{2}>\frac{12}{2}$ $\quad$ $\frac{2t}{2}<\frac{-12}{2}$ $t>6$ or $t<-6$ 

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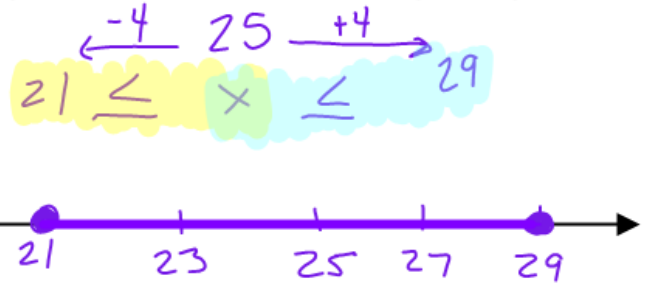
Example 3: Solving and Graphing Inequalities

Solve and graph each of the inequalities.

I Do
Jacob buys a package of M & M's that have 25 M & M's in it. The package says, however, that the number of M & M's in the bag might vary by 4. Find the range of acceptable M & M's in the bag. Then graph.



We Do
Tiara is has set a goal to make $175 in the month of January. At the end of the month, she told her brother that she was within $15 of her goal. Find the range of money that Tiara could have made. Then graph.