Name: _____ Date: _____

2.6 Solving Absolute Value Inequalities

Essential Question: _____

An absolute value inequality is an _____ that contains an _____ value

_____.

Ex. $|x| < 2$ or $|x| \geq 2$

Remember, it's a _____. Distance can never be less than _____, so it can never be

_____.

In the space below, copy down the aboslute value inequalities, and the graphs that you see in red in the video.

For the core concept below, add in the "I remember" portion in the video.

Core Concept

Solving Absolute Value Inequalities

To solve $|ax + b| < c$ for $c > 0$, solve the compound inequality

$ax + b > -c$ *and* $ax + b < c$.

To solve $|ax + b| > c$ for $c > 0$, solve the compound inequality

$ax + b < -c$ *or* $ax + b > c$.

In the inequalities above, you can replace $<$ with $\leq$ and $>$ with $\geq$.

EXAMPLE 1 Solving Absolute Value Inequalities

Solve each inequality. Graph each solution, if possible.

a. $|x + 7| \leq 2$ **b.** $|8x - 11| < 0$

EXAMPLE 2 Solving Absolute Value Inequalities

Solve each inequality. Graph each solution.

a. $|c - 1| \geq 5$ **b.** $|10 - m| \geq -2$ **c.** $4|2x - 5| + 1 > 21$

Absolute deviation: a number x from a given value is the _____ value of the _____ of x and the given value.

$$\text{absolute deviation} = |x - \text{given value}|$$

EXAMPLE 3 Modeling with Mathematics

You are buying a new computer. The table shows the prices of computers in a store advertisement. You are willing to pay the mean price with an absolute deviation of at most $100. How many of the computer prices meet your condition?