Name_____

ABSOLUTE VALUE INEQUALITIES #1

Directions: Solving *absolute value inequalities* requires two different strategies. To solve absolute value inequalities with a "greater than" symbol, you should split the problem into two separate inequalities, like solving an absolute value equation. This strategy is demonstrated in Example 1. For inequalities with a "less than" symbol, you can solve the two inequalities at the same time, as shown in Example 2.

Example 1: $|x+7|>10$

x + 7 < -10 or x + 7 > 10 (subtract 7 from both sides)

x < -17 or **x > 3**

$|x+4|<10$

-10 < x + 4 < 10 (subtract 4 from each part)

-14 < x < 6

1) $|x+8|<13$

2) $|x-8|>22$

3) $|x+2|\leq 8$

4) $|10+x|<14$

5) $|x-20|\geq 42$

6) $|x+2|<20$

7) $|x+10|\leq 20$

8) $|x-2|>12$

9) $|2+x|<24$

Name_____

ABSOLUTE VALUE INEQUALITIES #1--KEY

Directions: Solving *absolute value inequalities* requires two different strategies. To solve absolute value inequalities with a "greater than" symbol, you should split the problem into two separate inequalities, like solving an absolute value equation. This strategy is demonstrated in Example 1. For inequalities with a "less than" symbol, you can solve the two inequalities at the same time, as shown in Example 2.

Example 1: $|x+7|>10$

x + 7 < -10 or x + 7 > 10 (subtract 7 from both sides)

x < -17 or **x > 3**

Example 2: $|x+4|<10$

-10 < x + 4 < 10 (subtract 4 from each part)

-14 < x < 6

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1) $|x+8|<13$

$-21<x<5$

2) $|x-8|>22$

$x<-14$ **or** $x>30$

3) $|x+2|\le 8$

$-10\le x\le 6$

4) $|10+x|<14$

$-24<x<4$

5) $|x-20|\ge 42$

$x\le -22$ **or** $x\ge 62$

6) $|x+2|<20$

$-22<x<18$

7) $|x+10|\le 20$

$-30\le x\le 10$

8) $|x-2|>12$

$x<-10$ **or** $x>14$

9) $|2+x|<24$

$-26<x<22$