Unit 2 Day 20 Inequality Applications Homework

Directions: Read through each word problem and identify an appropriate inequality to represent the situation. When asked, solve! Be sure to include a unit!

1. A friend texts you asking you to help him on his math assignment. The text reads, "Three times a number minus 6 is greater than 12… Can you help me write the inequality?"
   a. If you let *x* represent the number, what inequality best models the info?

   $3x-6>12$

   b. Can you also help your friend solve the inequality and then graph?

   $3x-6>12$ → $+6\ +6$ → $3x>18$ → $\frac{3x}{3}>\frac{18}{3}$ → $x>6$

2. Keith has $500 in a savings account at the beginning of the summer. He wants to have *at least* $200 in the account by the end of the summer. He *withdraws* $25 each week for food, household items and gas.
   a. Write an inequality that represents Keith's situation. $500-25w\geq 200$

   b. How many weeks can Keith withdraw $25 from his account if he wants to have at least $200 saved?

   Flip sign! → $500-25w\geq 200$ → $\frac{-25w}{-25}\leq\frac{-300}{-25}$ → $w\leq 12$

   at most 12 weeks

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3. A friend texts you asking you to help him on his math assignment. The text reads, "Three times a number minus 6 is greater than 12… Can you help me write the inequality?"
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   b. Can you also help your friend solve the inequality and then graph?

4. Keith has $500 in a savings account at the beginning of the summer. He wants to have *at least* $200 in the account by the end of the summer. He *withdraws* $25 each week for food, household items and gas.
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   b. How many weeks can Keith withdraw $25 from his account if he wants to have at least $200 saved?

Review!

3. $-x-2 \le 4x+13$

$+x \quad +x$

$-2 \le 5x+13$

$-13 \quad -13$

$-15 \le 5x$ $\quad x \ge -3$

$\frac{-15}{5} \le \frac{5x}{5}$

Graph:

Inequality: $x \ge -3$

Interval: $[-3, \infty)$

4. $-3x+7 \ge -1(7+3x)$

$-3x+7 \ge -7-3x$

$+3x \quad +3x$

$7 \ge -7$ true!!

$\mathbb{R}$

Graph:

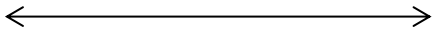
Inequality: $\mathbb{R}$

Interval: $(-\infty, \infty)$

Review!

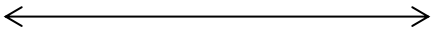
3. $-x-2 \le 4x+13$

4. $-3x+7 \ge -1(7+3x)$

Graph: 

Inequality:

Interval:

Graph: 

Inequality:

Interval: