5.1.2 CW: Solving Inequalities Name _____

Ravi and his friends are having a plant sale to raise money for summer camp. They are selling each plant for $4. How many plants do they need to sell to make more than $120? Identify the variable. Write and solve an inequality for this situation.

x: # of plants sold

$\frac{4x}{4} > \frac{120}{4}$

$x > 30$

You are helping your parents build a garden. It will be rectangular in shape. The area needs to be no greater than 300 square feet. The location of the garden only allows a width of 12 feet. Identify the variable. Write and solve an inequality for this situation.

L : length

$\frac{12L}{12} \leq \frac{300}{12}$

$L \leq 25$

Write the inequality. Solve, if possible

1. x is at least 58.

possible solns 68, 70, 59, 58

$x \geq 58$

2. The product of 22 and y is at most 308. ← biggest (multiply)

$\frac{22y}{22} \leq \frac{308}{22}$

$y \leq 14$

3. 10 less than a number n is greater than 47. (subtraction)

$n - 10 > 47$

$+10 \quad +10$

$n > 57$

Solve and graph each inequality.

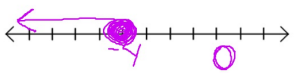
* When you multiply or divide by a negative #, you flip the inequality sign.

1. $-10 \geq a - 6$

$+6 \quad +6$

$-4 \geq a$

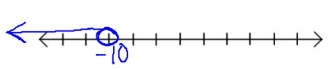
a is smaller ←



2. $-10a > 100$

$\frac{-10a}{-10} > \frac{100}{-10}$

$a < -10$



3. $-8 \leq x - 14$

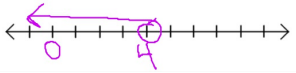
$+14 \quad +14$

$6 \leq x$ ← x is bigger

4. $15p < 60$

$\frac{15p}{15} < \frac{60}{15}$

$p < 4$



Jason is saving to buy a camera. The camera costs $490. He has saved $175. He would like to buy the camera in 3 weeks. Identify the variable and write an inequality to represent the least amount of money he must save every week to have enough to purchase the camera.

x: $ saved each week

$175 + 3x \geq 490$

$-175 \quad -175$

$\frac{3x}{3} \geq \frac{315}{3}$

$x \geq 105$

Julia has $486 in her bank account. She is going to withdraw $15 a week. How many weeks can she do this without going below the banks required minimum of $100 in her account. Remember to identify the variable.

w: # of weeks

$486 - 15w \geq 100$

$-486 \quad -486$

$\frac{-15w}{-15} \geq \frac{-386}{-15}$

$w \leq 25.73$

Write the inequality. Solve, if possible

1. The sum of **m** and **n** is less than 14.

$m + n < 14$

2. If 11 times a number is increased by 5, the result is at least 115.

$11n + 5 \geq 115$

$-5 \quad -5$

$11n \geq 110$

$n \geq 10$

3. The product of 4 and y added to 13 is at most 98.

$4y + 13 \leq 98$

$-13 \quad -13$

$\frac{4y}{4} \leq \frac{85}{4}$

$y \leq 21.25$

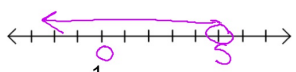
Solve and graph each inequality.

1. $-6 + 5x < 19$

$+6 \quad +6$

$\frac{5x}{5} < \frac{25}{5}$

$x < 5$

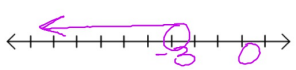


2. $-17 > 5x - 2$

$+2 \quad +2$

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

$-3 > x$



3. $-\frac{1}{2}x + 3 \leq 7$

$-3 \quad -3$

$\frac{-\frac{1}{2}x}{-\frac{1}{2}} \leq \frac{4}{-\frac{1}{2}}$

$x \geq -8$

4. $-5 \geq 6x - 23$

$+23 \quad +23$

$\frac{18}{6} \geq \frac{6x}{6}$

$3 \geq x$