Get out your homework and have it ready to check. Target Check on inequalities on Thursday. Warm Up on the problems below.

Classwork - Writing Inequalities

Warm Up: Solve the following Inequalities.

A) $2x - 8 > 20$

$+8 \quad +8$

$\frac{2x}{2} > \frac{28}{2}$

$x > 14$

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

$-7 \quad -7$

$3 \cdot \frac{2x}{3} \leq -8 \cdot 3$

$\frac{2x}{2} \leq \frac{-24}{2}$

$x \leq -12$

C) $-5x + 4 \leq 19$

$-4 \quad -4$

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

$x \geq -3$

Solve and graph the following inequalities. Remember, when multiplying or dividing by a negative number to must flip the inequality symbol. SHOW WORK

A) $8x - 12 \leq 20$

$+12 \quad +12$

$\frac{8x}{8} \leq \frac{32}{8}$

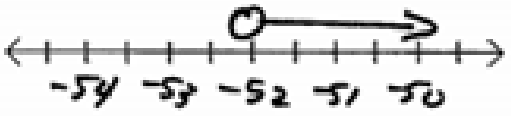
$x \leq 4$

B) $\frac{x}{4} + 7 > -6$

$-7 \quad -7$

$4 \cdot \frac{x}{4} > -13 \cdot 4$

$x > -52$

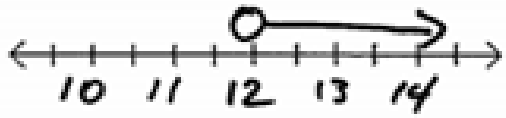


C) $-3.25x + 10 < -29$

$-10 \quad -10$

$\frac{-3.25x}{-3.25} < \frac{-39}{-3.25}$

$x > 12$



D) $\frac{2}{3}x - 6 \geq 4$

$+6 \quad +6$

$3 \cdot \frac{2x}{3} \geq 10 \cdot 3$

$\frac{2x}{2} \geq \frac{30}{2}$

$x \geq 15$

E) $31 \geq 5x - 9$

$+9 \quad +9$

$\frac{40}{5} \geq \frac{5x}{5}$

$8 \geq x$ or $x \leq 8$

F) $-\frac{1}{3}x + 11 \leq 9$

$-11 \quad -11$

$3 \cdot \frac{-1x}{3} \leq -2 \cdot 3$

$\frac{-1x}{-1} \leq \frac{-6}{-1}$

$x \geq 6$

Inequality Signs

$>$ → Greater Than $<$ → Less Than $\geq$ → Greater Than or Equal To $\leq$ → Less Than or Equal to

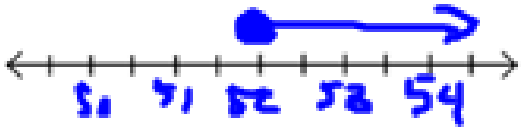
Open Circle is $<$ or $>$
(Value **IS NOT** included)

Closed Circle is $\leq$ or $\geq$
(Value **IS** included)

1) Write an inequality to represent the situation. Then graph the inequality.

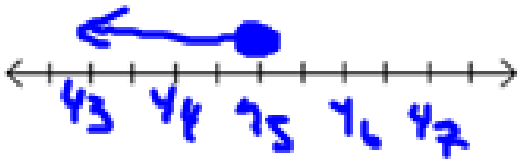
A) To ride an amusement park ride, you must be 52 inches tall or taller.

h = height $h \geq 52$



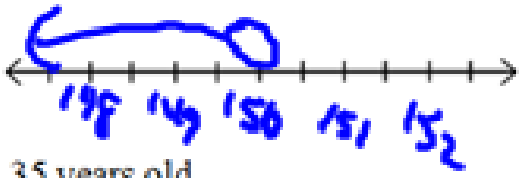
B) A restaurant can hold at most 45 people.

P = People $P \leq 45$



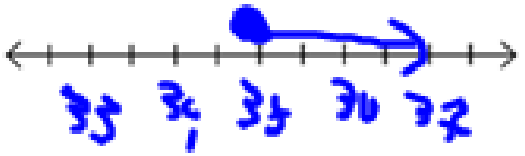
C) In most states, you must be at least 16 years old to drive a motor vehicle.

t = tickets $t < 150$



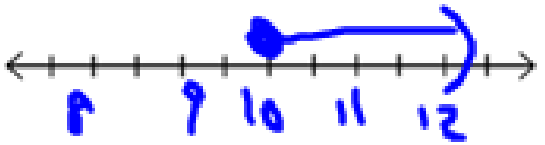
D) To run for the President of the United States, you must be at least 35 years old.

a = age $a \geq 35$



E) In the game of football, a team needs to gain at least 10 yards for a first down.

y = yards $y \geq 10$



2) Write an inequality to represent the situation. Then solve and graph the inequality.

A) A bus holds at most 47 passengers. There are already 29 passengers seated on the bus. How many more passengers can be seated on the bus? **Write an inequality and solve. Then graph it.**

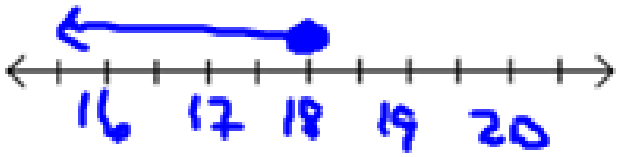
Define Variable: p = passengers

Inequality

$p + 29 \leq 47$

$-29 \quad -29$

$p \leq 18$ passengers



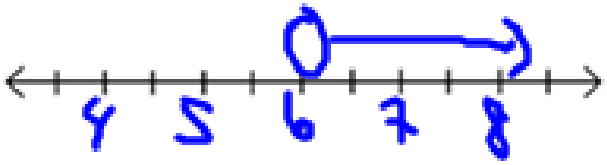
B) It cost Sophia $72 to make wind chimes. How many wind chimes can she sell at $12 apiece to make a profit? **Write an inequality and solve. Then graph it.**

Define Variable: w = wind chimes

Inequality

$\frac{12w}{12} > \frac{72}{12}$

$w > 6$ wind chimes



C) Jude wants to spend $55 from his savings account on a video game. He wants to have at least $150 left in his account after he purchases the video game. How much money would Jimmy need in his savings account? **Write an inequality and solve. Then graph it.**

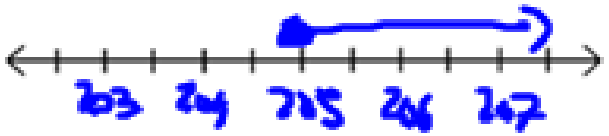
Define Variable: m = money in account

Inequality

$m - 55 \geq 150$

$+55 \quad +55$

$m \geq \$205$



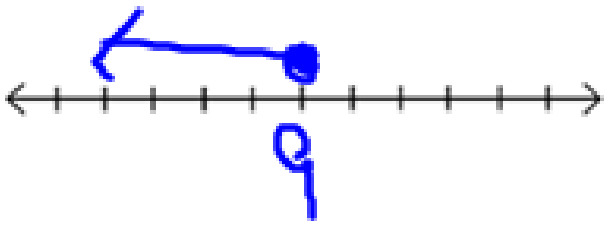
D) Mark is driving to Florida at 65 miles per hour. The most he is willing to drive in one day is 585 miles. How many hours could he possibly drive? **Write an inequality and solve. Then graph it.**

Define Variable: h = hours

Inequality

$\frac{65h}{65} \leq \frac{585}{65}$

$h \leq 9$ hours



E) Jacius has drunk 2 glasses of water today so far. His goal is to drink ~~at least~~ more than 8 glasses ~~or more each day~~. How many glasses does he need to drink to reach his goals? **Write an inequality and solve. Then graph it.**

Define Variable: g = glasses

Inequality

$g + 2 > 8$

$-2 \quad -2$

$g > 6$ glasses