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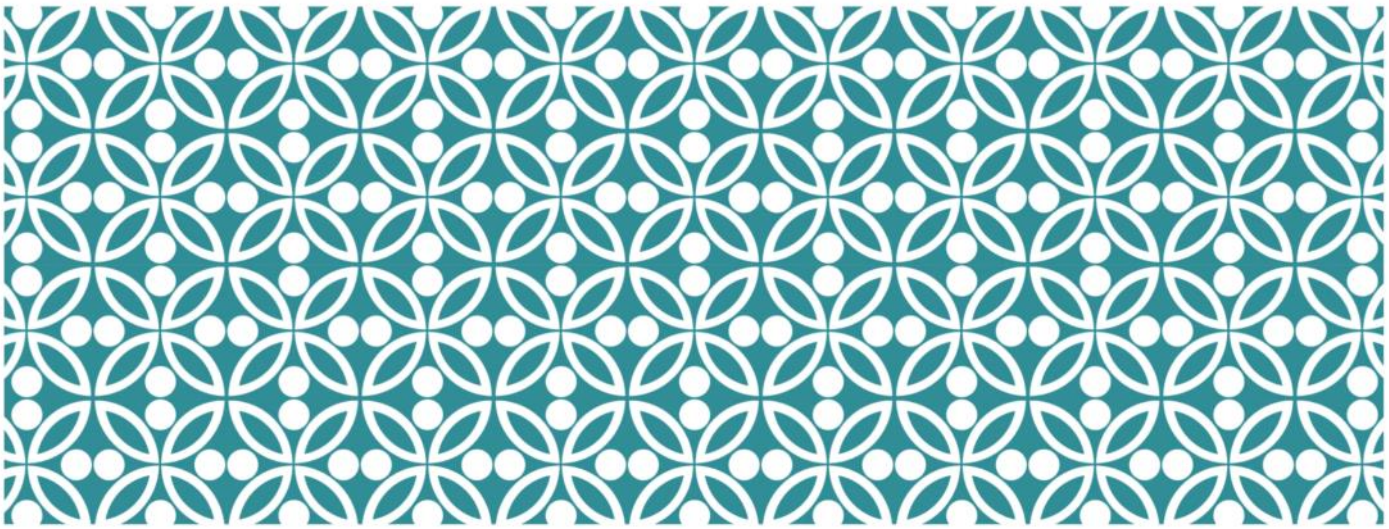

LESSON 4.2

3. SOLVE INEQUALITIES

4. SOLVE INEQUALITY WORD PROBLEMS

Goal: To solve equations/inequalities in math and real world context and to write rules for arithmetic sequence.

Obj: SWBAT write/solve inequalities in word problems.

INEQUALITY SYMBOLS	KEY WORDS Word Problems	GRAPHING
$>$ Greater than	more than	open circle
$\geq$ Greater than or equal to	at least	close circle
$<$ Less than	less than	open circle
$\leq$ Less than or equal to	no more than, at most	close circle

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LETS EXPLORE INEQUALITIES

$5(1) > 40$

$5 > 40$

$5(8) > 40$

$40 > 40$

$5(8.1) > 40$

$40.5 > 40$ ✓

$5(10) > 40$

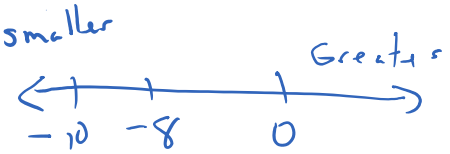
$50 > 40$ ✓

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

$x > 8$

x Greater than 8

LETS EXPLORE INEQUALITIES



$$\frac{-5x}{-5} > \frac{40}{-5}$$

$x < -8$

x less than -8

$-5(0) > 40$

$0 < 40$ ✓

$-5(2) > 40$

$-10 < 40$ ✓

$-5(-10) > 40$

$50 > 40$ ✓

if you multiply or divide by a negative you must switch the inequality sign

PROBLEM 1:

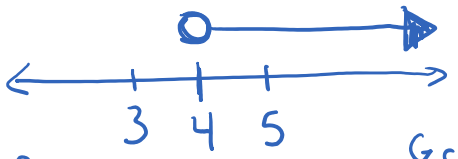
Solve and graph each inequality.

$2x - 1 > 7$

$+1 \quad +1$

$\frac{2x}{2} > \frac{8}{2}$

$x > 4$



Greater

Left is less

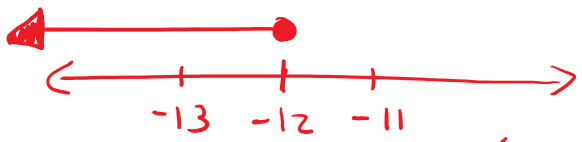
Open circle means Not included

$12 - 5k \geq 72$

$-12 \quad -12$

$\frac{-5k}{-5} \leq \frac{60}{-5}$

$k \leq -12$



Greater

Left is less

close circle means included

PROBLEM 1A:

Solve and graph each inequality.

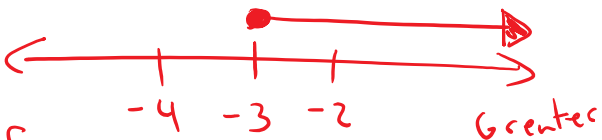
$2(-y-1) \leq 4$

$-2y - 2 \leq 4$

$+2 \quad +2$

$\frac{-2y}{-2} \leq \frac{6}{-2}$

$y \geq -3$



left is less

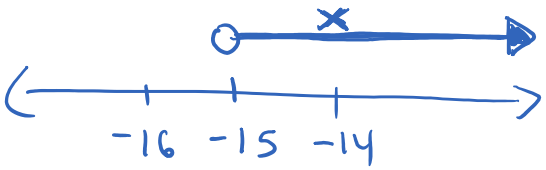
greater

$7 \cdot -2 < \left(\frac{1+x}{7}\right) \cdot 7$

$-14 < 1 + x$

$-1 \quad -1$

$-15 < x$ or $x > -15$



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PROBLEM 1B:

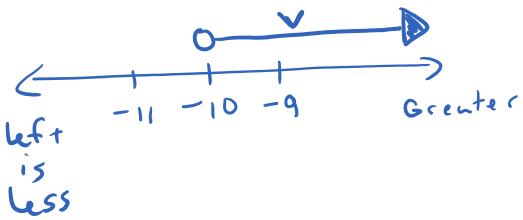
Solve and graph each inequality.

$\frac{v}{5} - 10 > -12$ ·5 ·5

$v - 50 > -60$

$+50 \quad +50$

$v > -10$



left is less

$\frac{2}{3}(-10 - x) \leq 6$

PROBLEM 1C:

Solve and graph each inequality.

$4(x + 9) < -12$

$-1 - \frac{x}{8} \geq -3$

PROBLEM 2:

YellowCab Taxi charges a $1.75 flat rate in addition to $0.65 per mile. Katie has no more than $10 to spend on the ride. Write an inequality that represents Katie's situation. How many miles can Katie travel without exceeding her limit?

flat rate + per mile $

$1.75 + .65m \leq 10$

$-1.75 \quad -1.75$

$\frac{.65m}{.65} \leq \frac{8.25}{.65}$

$m \leq 12.69$

Katie can go no more than 12.69 miles

PROBLEM 2A:

Keith has $500 in savings account at the beginning of the summer. He want to have at least $200 in the account by the end of the summer. He withdraws $25 each week for food, clothes and movie tickets. Write an inequality that represents Keith situation. How many weeks can Keith withdraw money from his account?

PROBLEM 3:

Solve and graph each inequality.

$1 + 2x \leq 3x - 4$

$9 + 6x > 8x - 5$

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PROBLEM 3A:

Solve and graph each inequality.

$-x - 3 < 15 + 5x$

$2x - 6 + 1 - 2 \leq x - 2$

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PROBLEM 3B:

Solve and graph each inequality.

$-2(1-2x) \geq 3(x-5)$

$6(-3x-2) > -2(3x-6)$