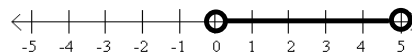


Warm Up:

Write each inequality 3 other ways:

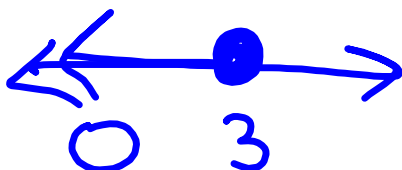
$x > 5$

$x$  is no more than 3



$(5, \infty)$

$x \leq 3$



$(-\infty, 3]$

$0 < x < 5$

$(0, 5)$

Solving inequalities - same process as solving equations except...

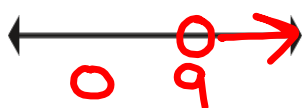
$$\begin{array}{l} \frac{1}{2}x + 2 > 3 \\ \quad -2 \quad -2 \\ \hline \frac{2}{1} \cdot \frac{1}{2}x > 1 \cdot 2 \\ \quad \quad \quad x > 2 \\ \quad \quad \quad (2, \infty) \end{array} \left\{ \begin{array}{l} -3x - 6 \leq 9 \\ \quad +6 \quad +6 \\ \hline -3x \leq 15 \\ \quad \quad \quad \frac{-3}{-3} \quad \frac{15}{-3} \\ \quad \quad \quad x \geq -5 \quad [-5, \infty) \end{array} \right.$$

Solve, graph, and write each inequality in interval notation.

$$1. \frac{2x-6}{3} > 0$$

$$x > 9$$

$$(9, \infty)$$



$$2. 3 \geq -(2x+9)$$

$$x \geq -6$$

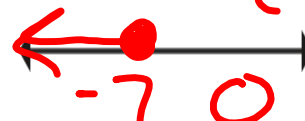
$$[-6, \infty)$$



$$3. 25 \leq -3x+4$$

$$x \leq -7$$

$$(-\infty, -7]$$



4. Joe has \$50 in his bank account and earns \$10 per week for his allowance. He wants to save up to buy a new ski jacket and will need to save **at least** \$300 to pay for it.

Write an inequality to represent the situation:  $50 + 10w \geq 300$

Solve:  $w \geq 25$

Write your answer ALGEBRAICALLY.

1.  $2x-7 < 5$

2.  $2x \geq 4x-10$

3.  $-\frac{1}{3}(x-12) \geq 6$

4.  $24 < -4x-8$

5.  $49-6x-3x \geq -2x$

6.  $\frac{1}{2}(9x-7) < 3x+4$

7. Mrs. Hodges starts each quarter with 20 new pencils. Each week her students steal 3 pencils. After how many weeks will she have less than 8 pencils left?

Inequality: \_\_\_\_\_

Solution: \_\_\_\_\_

8. Kelsey needs a test average of at least 90 to get an "A-" this marking period in math. Her three test grades are 87, 91, and 86. What score must she get on her fourth test to receive at least a 90 for the marking period?

Inequality: \_\_\_\_\_

Solution: \_\_\_\_\_

$$\text{average} \geq 90$$

$$\frac{87+91+86+x}{4} \geq 90$$

$$x \geq 96$$

$$\begin{array}{r} \cancel{4} \cdot \frac{264+x}{\cancel{4}} \geq 90 \cdot \cancel{4} \\ \hline 264+x \geq 360 \\ -264 \end{array}$$

## Hangman Activity

