Lesson 2.7- SWBAT graph and solve linear inequalities.

Kickoff- Solve each of the following equations

1) $-5x - 3 = 12$

2) Solve for x: $\frac{x}{2} - 2 = 5$

3) Solve for y: $3y = 6x$

4) $-5n - 8(n+1) = -8$

The only difference between an equation and an inequality is the symbol.
Instead of "=" there is:

Solve inequalities the same you solve equations.

"EXCEPT: When you DIVIDE by a negative, you MUST flip the inequality sign!

- $<$ less than
- $>$ greater than
- $\leq$ less than or equal to
- $\geq$ greater than or equal to

Example: Solve and graph the solution of $5x > 10$

Write the solution in Set Builder Notation and also Interval Notation.

Set Builder Notation
{variable| inequality}

Interval Notation
- Shaded circle: "[" or "]"
- Open Circle: "(" or ")"
- Infinity: "(" or ")"

Example: Set Builder Notation

Interval Notation:

Solve and graph the solution set of each. Write the solution in set builder notation and interval notation.

1) $x - 8 \leq 5$

Builder Notation: Set Notation:

2) $-2x \geq 6$ * flip!

Builder Notation: Set Notation:

3) $-5x - 3 < 12$ * flip!

Builder Notation: Set Notation:

4) $2 \leq 5x - (x + 4)$

Builder Notation: Set Notation:

5) $-2(x + 1) + 6 > 10$

Builder Notation: Set Notation:

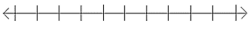
6) $5 \geq -3x + 5$

Builder Notation: Set Notation:

7) $-(5x - 9) > 26$

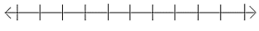
Builder Notation: Set Notation:

8) $2(1 - 4r) \leq -2(r + 3) - 4$



Builder Notation: Set Notation:

9) $3(6b - 1) > 18 - 3b$



Builder Notation: Set Notation:

10) $-6(1+2x) \geq 6(2x-1)+2x$

Builder Notation: Set Notation: