Lesson 1.5 Warm Up (Clickers)

- 1. What number system does 0.35 belong to?
- 2. Solve for x: 3(2x 4) = 6x + 12
- 3. Evaluate: 5x 2y for x = -1 and y = -2

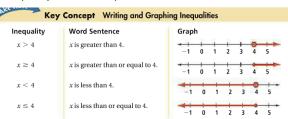
Remember from algebra 1, an open circle means the data point is NOT included as a solution while a closed circle means that it IS included as a solution.

Also, remember that when you multiply or divide by a negative while solving, you need to switch the inequality sign.

Ex. What inequality represents the sentence, "5 fewer than a number is at least 12"?

Lesson 1.5 Solving Inequalities

<u>Essential Understanding:</u> Just as you use properties of equality to solve equations, you can use properties of inequality to solve inequalities.



1 What inequality represents the sentence, "The quotient of a number and 3 is no more than 15."?

Ex. What is the solution of $-3(2x - 5) + 1 \ge 4$?

Graph the solution

2 What is the solution of $-2(x+9)+5 \ge 3$?

Ex. A movie rental company offers two subscription plans. You can pay \$36 a month and rent as many movies as desired, or you can pay \$15 a month and \$1.50 to rent each movie. How many movies must you rent in a month for the first plan to cost less than the second plan?

Ex. A digital music service offers two subscription plans. The first has a \$9 membership fee and charges \$1 per download. The second has a \$25 membership fee and charges \$.50 per download. How many songs must you download for the second plan to cost less than the first plan?

Ex. Is the inequality always, sometimes, or never true?

a.
$$-2(3x + 1) > -6x + 7$$

b. $5(2x - 3) - 7x \le 3x + 8$

You can join two inequalities with the word and or the word or to form a compound inequality. To solve a compound inequality containing and, find all values of the variable that make both inequalities true.

Ex. What is the solution of 7 < 2x + 1 and $3x \le 18$ Graph the solution.

3 Is 4(2x - 3) < 8(x + 1) always, sometimes, or never true.

- A always
- B sometimes
- C never

Ex. What is the solution of $5 \le 3x - 1$ and 2x < 12? Graph the solution.

To solve a compound inequality containing or, find all values of the variable that make at least one of the inequalities true.

Ex. What is the solution of $7 + k \ge 6$ or 8 + k < 37 Graph the solution.

Ex. Solve 7w + 3 > 11 or 4w - 1 < -13. Graph the solution.

4 Solve: 16 < 5x + 1 or 3x + 9 < 6