Day 12 PowerPoint 1.11-1.12 Inequalities

Assignments HW12 Unit Test 1 (Lessons 1.1 - 1.12)

1.11 Inequalities

SWBAT graph one-variable inequalities.

Assignments HW12 Study for Unit Test 1

Inequalities

- Define equation.
 - 2 expressions that are said to be equal
- Definition of *inequality*:
 - a statement that 1 expression is greater than another expression.
- Solution:
 - The specific values that make the equation/inequality/statement true.

Inequality Symbols

- > is greater than
- < is less than</p>
- \blacktriangleright \geq is greater than or equal to
- \blacktriangleright \leq is less than or equal to

Graphing on a number line

- > open dot
- open dot
- $\triangleright \geq closed dot$
- \blacktriangleright \leq closed dot

Translate.

- 1. The product of a number and 12 is less than or equal to 22
- 2. A number decreased by 28 is less than 26
- 3. A number times 5 is greater than or equal to 21
- 4. A number times 5 is greater than 19
- 5. A number cubed is greater than or equal to 8
- 6. 16 less than a number is greater than or equal to 14

1.2r < 39*2. n* − 6 > 12 *3.* $\frac{n}{6} \le 25$ 4. $\frac{v}{7} \le 6$ *5.* n + 6 ≥ 36 6. $\frac{x}{2} < 8$

Graph the Inequalities on a number line ▶ *x* < 13 *1*. *y* < 14 2.n > 6*3. m* ≤ −2 ▶ *y* ≥ 25 4. *h* ≥ -55. 4 ≤ r▶ 12 < *x* 6. t < 5.17 - 3 > t \blacktriangleright -10 \leq *y*

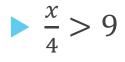
1.12 Solving Inequalities

SWBAT solve and graph one-variable inequalities.

Solve the inequality.

With one exception (discussed later) solving an inequality is *exactly the same* as solving an equation.

▶ *x* + 7 > 13



1. x - 12 < 18*2.* 7 > x - 7*3.* $n + 9 \ge 3$ *4.* 9 < *j* + 1 5. $3 \le 3x$ 6. $2x \ge 28$ 7. $\frac{x}{7} \ge 3$ 8. $\frac{x}{2} \le 12$

Solve the inequality: The One "Weird Thing"

Summary: When you solve by multiplying or dividing by a negative number, the inequality "flips" or reverses sides

► -3*x* > 12

 $\blacktriangleright \frac{x}{-2} \le 4$

1. -20x < 100*2.* −3*x* ≥ −12 3. $-10x \ge -150$ 4. -2x < 45. $\frac{x}{-3} > 1$ 6. $\frac{y}{-5} \le 12$ 7. $\frac{m}{-7} > (-2)$ 8. $-\frac{1}{3}t < 0$ 9. 13 - h > 10

Solving Inequalities

- Steps to solving inequalities:
 - 1. Simplify Expressions
 - 2. Variables on both sides?
 - 3. SADMEP
- Remember the ONE difference:
 - When you multiply or divide by a NEGATIVE number, you must "flip" the inequality sign

Solve the inequalities and graph the solutions on a number line.

▶ 3*x* − 4 < 17

 $\blacktriangleright -2x + 8 \ge -10$

▶ 18 > 3(x + 2)

1. 3x - 4 > 52. -3x - 9 < -123. 4 - 7b > 184. 2 < 3n + 115. 4(v + 1) < 486. $-2(h - 4) \ge 34$ 7. 4 < 2(x + 9)

Solving Inequalities

▶ 4x - 2(x - 3) > 18

1. 2x - 1 + 8x < 392. 2(x - 7) + 4x > 343. -2(x + 1) - 7x < -1014. $x - 3(2x - 5) \ge 50$ 5. $34 \ge x + 2(2x + 2)$

►
$$-5x + 3(x + 2) \ge 40$$