

Unit 0 Back to Basics Review  
Day 9 Solve Linear Inequalities  
(PH 3-2 to 3-4)

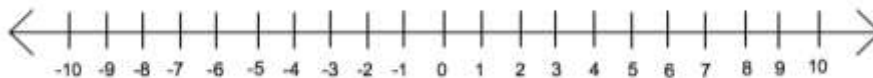
Name: \_\_\_\_\_  
Date: \_\_\_\_\_ Hour: \_\_\_\_\_

**Greater Than:**  
**Greater Than OR Equal To:**

**Less Than:**  
**Less Than OR Equal To:**

**Example 1:** Graph each inequality on a number line.

a.  $x < 2$



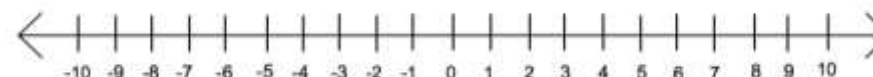
b.  $x \geq -3$



c.  $x \leq 0$



d.  $x > -5$



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When solving linear *inequalities*, the solution is often a set of real numbers.

○ Use **OPEN** circles for \_\_\_\_\_ or \_\_\_\_\_

● Use **CLOSED** circles for \_\_\_\_\_ or \_\_\_\_\_

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**Example 2:** Solve the inequality. Graph your solution.

a.  $x + 12 < -20$



b.  $x - 3/2 = 5/4$



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**Investigation:** Consider the inequality  $4 > 1$ .

- What happens to the inequality symbol when you *multiply each side by a positive* number?
- What happens to the inequality symbol when you *multiply each side by zero*?
- What happens to the inequality symbol when you *multiply each side by a negative* number?

If you multiply (or divide) both sides by a *positive* number the inequality symbol \_\_\_\_\_.

If you multiply (or divide) both sides by a *negative* number the inequality symbol \_\_\_\_\_.

**Example 3:** Solve each inequality. Graph and check your solution.

a.  $-5z \geq 25$



b.  $\frac{x}{2} < -1$



c.  $-\frac{3}{5}x < 9$



**Example 4:** Solve and graph the solution.

$5 > 7 - 2h$



**Example 5:** Solve and check your solutions. Do not Graph.

a.  $4p + 2(p + 7) \leq 8$

b.  $6z - 15 < 4z + 11$

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**BE CAREFUL:**

If you get a “false” statement there are ***NO SOLUTIONS*** to the inequality. It is ***NEVER*** true.

Example of a “false” statement:

If you get a “true” statement there are ***INFININITE SOLUTIONS***. It is ***ALWAYS*** true.

Example of a “true” statement:

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**Example 6:** Solve. Do not Graph.

a.  $2x + 15 > 2(x + 5)$

b.  $-4x + 1 \leq -4x - 3$