**Chapter 10 Unit Test - Compound Inequalities and Absolute Values**

**Name_____ Section_____**

**Be sure to show all your work and circle your answer.**

**Solve and graph the following. Write your answers in interval notation:**

1) $-3y - 2 \geq 7$

2) $-\frac{2}{3} < \frac{x}{8} - 1 \leq \frac{3}{4}$

3) $7x + 5 > -2$ or $3x - 1 \leq -10$

4) $3x - 2 \geq 7$ and $2x + 4 < 7$

**Solve the following:**

5) $3|5x - 9| = 51$

6) $|4x - 3| = |6x + 9|$

7) $2|4x - 11| + 12 = 2$

**Solve the following. Write your answers in interval notation:**

8) $|4 + 5x| \leq 3$

9) $|\frac{3}{5}x - 8| < -2$

10) $|-7.2x + 3.6| \geq 14.4$

**Sketch the graph of the following (be sure to label the axis):**

11) $-3x + 4y \geq 12$

12) $y < 2x - 3$

**Solve the following systems by graphing. Label all vertices:**

13) $x + y < 3$
$x - 2y \leq 6$

**Solve the following inequalities:**

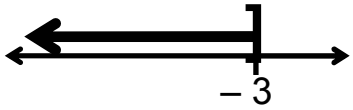
14) $x^2 - x < 12$

15) $\frac{(x+3)(x-2)}{(x-1)} \geq 0$

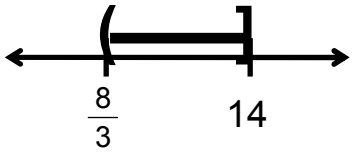
16) A three-inch screw will be rejected if its length varies by more than ± 0.015 in. a) Write an inequality that represents this situation. b) Solve the inequality and interpret what the solution means.

**Answers**

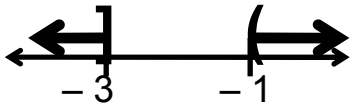
1) $(-\infty, -3]$




2) $\left(\frac{8}{3}, 14\right]$




3) $(-\infty, -3] \cup (-1, \infty)$

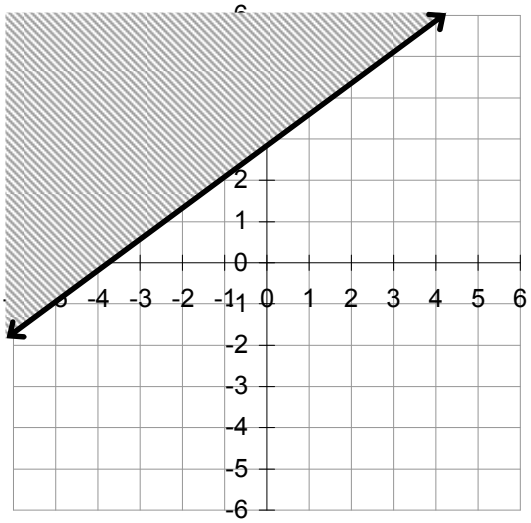



4) { }

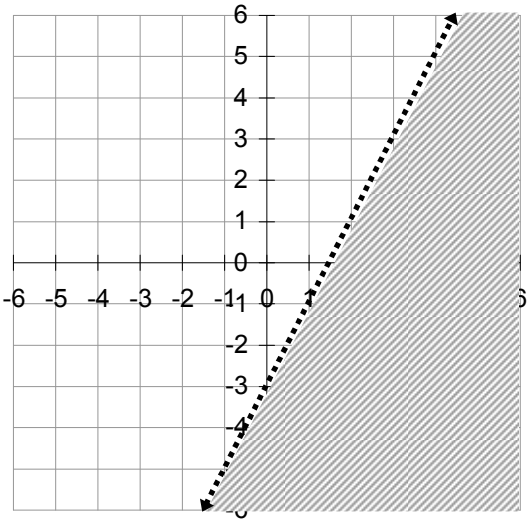
5) {– 1.6. 5.2} 6) {– 6, – 0.6} 7) { } 8) [– 1.4, – 0.2]

9) { } 10) $(-\infty, -1.5] \cup [2.5, \infty)$

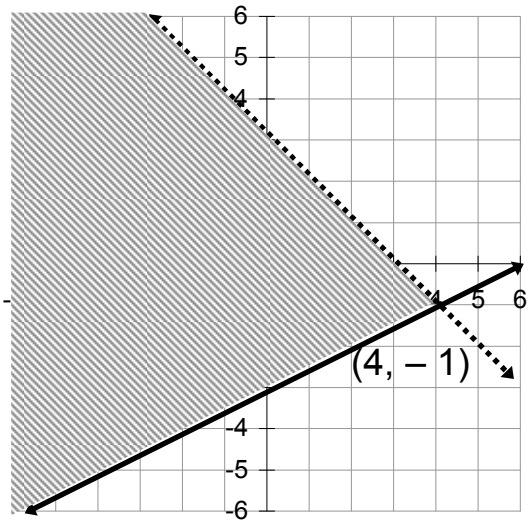
11)



12)



13)




14) (– 3, 4) 15) [– 3, 1) U [2, ∞)

16) $|L - 3| > 0.015$; the screw will be rejected if the length is less than 2.985 inches or more than 3.015 inches.