

# 6.4 Notes

## "Solve and Graph Compound Inequalities"

### Compound Inequalities

Conjunction:

AND

#'s must be in both parts of the inequality  $3 < x < 6$

(where they intersect)

Usually shaded between the points



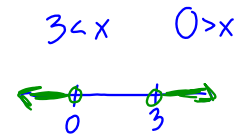
Disjunction:

OR

#'s are in either part of the inequality

(shade both)

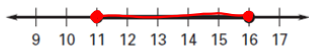
Usually shaded out



Write an **INEQUALITY** that is represented by the graph.



$x < 7$  or  $x > 10$



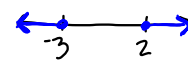
$11 \leq x \leq 16$

Sketch a Graph of the Inequality.

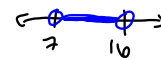
4.  $-4 \leq x \leq 9$



5.  $x \geq 2$  or  $x \leq -3$



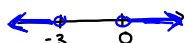
6.  $16 > x > 7$



Translate the verbal phrase into an Inequality and graph.

All real numbers that are less than -3 or greater than 0.

$x < -3$  or  $x > 0$



All real numbers that are less than 9 and greater than or equal to 7.



Solve and graph the Inequality.

9.  $3 < x + 4 < 11$

10.  $3x - 1 \leq 5$  or  $5x + 2 > 37$

$$\begin{array}{r} 3 < x + 4 < 11 \\ -4 \quad -4 \quad -4 \\ \hline -1 < x < 7 \end{array}$$



$$\begin{array}{r} 3x - 1 \leq 5 \quad \text{or} \quad 5x + 2 > 37 \\ +1 \quad +1 \quad \quad \quad -2 \quad -2 \\ \hline 3x \leq 6 \quad \quad \quad 5x > 35 \\ \frac{3x}{3} \leq \frac{6}{3} \quad \quad \quad \frac{5x}{5} > \frac{35}{5} \\ x \leq 2 \quad \text{or} \quad x > 7 \end{array}$$

