6.4 Notes

"Solve and Graph <u>Compound</u> Inequalities"

Compound Inequalities

<u>Conjunction:</u>
AND
#'s must be in both parts of the inequality
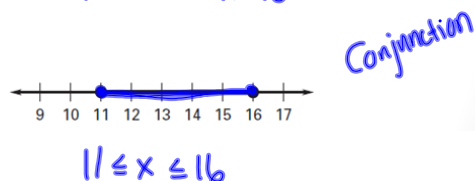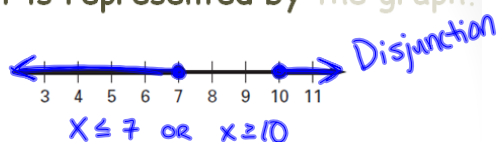(where they intersect)
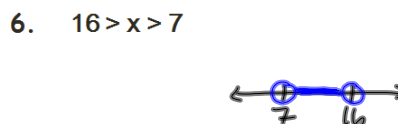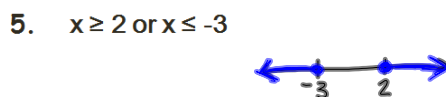Usually shaded between the points

<u>Disjunction:</u>
OR
#'s are in either part of the inequality
(shade both)
Usually shaded out
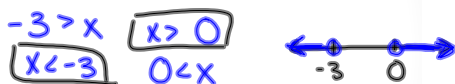

Write an INEQUALITY that is represented by the graph.

Disjunction

$x \leq 7$ or $x \geq 10$

Conjunction

$11 \leq x \leq 16$

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.

$-3 > x$ $x > 0$

$x < -3$ $0 < x$

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

$7 \leq x < 9$

Solve and graph the Inequality.
9. $3 < x + 4 < 11$

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

9) $3 < x + 4 < 11$
$\phantom{3<} -4 \quad -4 \quad -4$
$\phantom{3<} -1 < x < 7$

10) $3x - 1 \leq 5$ or $5x + 2 > 37$
$ +1 \quad +1 \qquad -2 \quad -2$
$ \dfrac{3x \leq 6}{3 \quad 3} \qquad \dfrac{5x > 35}{5 \quad 5}$
$ x \leq 2$ or $x > 7$