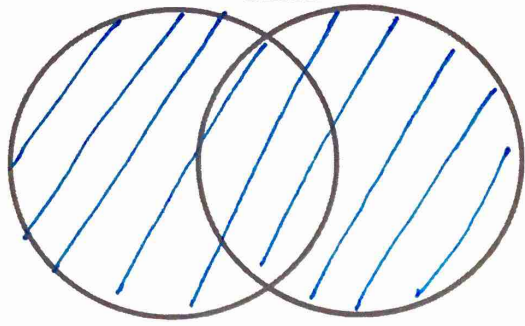


Master E

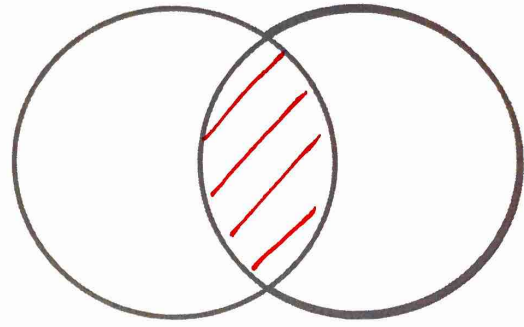
Day 05 Algebra 2 Notes on Solving Compound Inequalities

1-6: Shade the solution set for each situation. & state the set of points rep. for you
FA

OR
Union



AND
Intersection



1. $x \leq 1$ or $x > 3$ FA

2. $x < 5$ and $x > 2$ FA

$2 < x < 5$

3. $x > 2$ OR $x > 4$ FA

$x > 2$

4. $x > 2$ AND $x > 4$ FA

$x > 4$

5. $x < 2$ AND $x > 2$ FA

\emptyset

6. $x > 2$ OR $x < 4$ FA

\mathbb{R}
or ∞ sol.

7-10: Write a compound inequality for each graph.

7.

$-50 \leq x \leq 50$

8.

$x \leq -25$ or $x \geq 25$

9.

$x \leq -10$ or $x \geq 10$

10.

$-1.5 < x < 1.5$

11-18: Solve each inequality and graph your solution.

11. $-8 \leq 3y - 20 < 52$

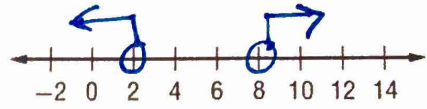
$$\begin{array}{r} +20 \quad +20 \quad +20 \\ \hline 12 \leq 3y < 72 \\ \hline \frac{12}{3} \leq \frac{3y}{3} < \frac{72}{3} \\ \hline 4 \leq y < 24 \end{array}$$



12. $3(5x - 2) < 24$ or $6x - 4 > 4 + 5x$

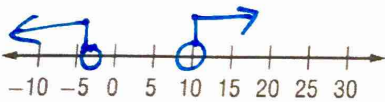
$$\begin{array}{r} 15x - 6 < 24 \quad \text{or} \quad 6x - 4 > 4 + 5x \\ +6 \quad +6 \quad +6 \quad \quad \quad -5x \quad -5x \\ \hline 15x < 30 \quad \quad \quad x - 4 > 4 \\ \hline x < 2 \quad \quad \quad x > 8 \end{array}$$

$x < 2$ or $x > 8$



13. $5x + 2 < -18$ or $2x + 1 > 21$

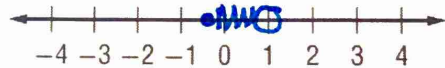
$$\begin{array}{r} -2 \quad -2 \quad \quad \quad -1 \quad -1 \\ \hline 5x < -20 \quad 2x > 20 \\ \hline \frac{5x}{5} < \frac{-20}{5} \quad \frac{2x}{2} > \frac{20}{2} \\ \hline x < -4 \quad \text{or} \quad x > 10 \end{array}$$



14. $\frac{33}{4} \leq 3x + 9 < 12$

$$\begin{array}{r} -9 \quad -9 \quad -9 \\ \hline -3 \leq 3x < 3 \\ \hline \frac{-3}{3} \leq \frac{3x}{3} < \frac{3}{3} \\ \hline -1 \leq x < 1 \end{array}$$

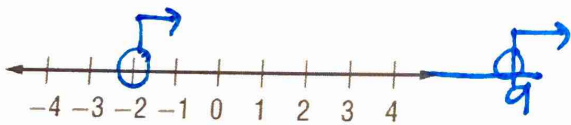
$\frac{33}{4} - \frac{36}{4}(9)$
 $\frac{3}{4} \div 3 =$
 $\frac{-3}{4} \cdot \frac{1}{3} = \frac{-1}{4}$



15. $2x - 3 > 15$ or $-7x < 17$

$$\begin{array}{r} +3 \quad +3 \quad \quad \quad -3 \quad -3 \\ \hline 2x > 18 \quad -7x < 14 \\ \hline \frac{2x}{2} > \frac{18}{2} \quad \frac{-7x}{-7} < \frac{14}{-7} \\ \hline x > 9 \quad \quad \quad x > -2 \end{array}$$

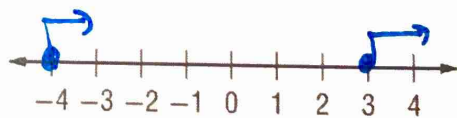
FA: $x > 2$



16. $15 - 5x \leq 0$ and $5x + 6 \geq -14$

$$\begin{array}{r} -15 \quad -15 \quad \quad \quad -6 \quad -6 \\ \hline -5x \leq -15 \quad 5x \geq -20 \\ \hline \frac{-5x}{-5} \leq \frac{-15}{-5} \quad \frac{5x}{5} \geq \frac{-20}{5} \\ \hline x \geq 3 \quad \quad \quad x \geq -4 \end{array}$$

FA: $x \geq 3$



17. $35 - 5x \leq 0$ and $5x + 6 \geq -14$

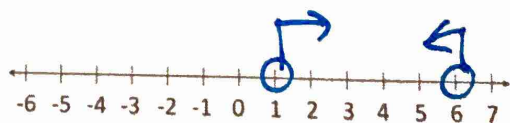
$$\begin{array}{r} -35 \quad -35 \quad \quad \quad -6 \quad -6 \\ \hline -5x \leq -35 \quad 5x \geq -20 \\ \hline \frac{-5x}{-5} \leq \frac{-35}{-5} \quad \frac{5x}{5} \geq \frac{-20}{5} \\ \hline x \geq 7 \quad \quad \quad x \geq -4 \end{array}$$



FA: $x \geq 7$

18. $4 < 3 + x$ or $x - 5 < 1$

$$\begin{array}{r} -3 \quad -3 \quad \quad \quad +5 \quad +5 \\ \hline 1 < x \quad \quad \quad x < 6 \\ \hline x > 1 \end{array}$$



FA: \mathbb{R}