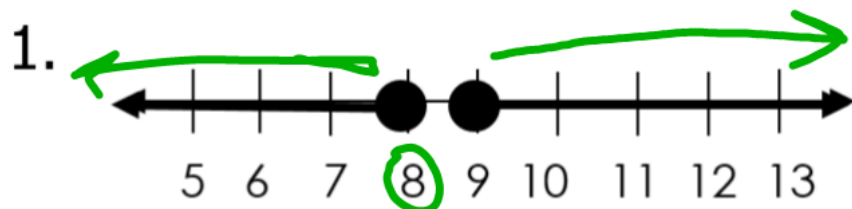


Notes: Solving Compound Inequalities

$<, >$ ○
 \leq, \geq ●

And → shade inside
 Or → shade out

Write a compound inequality for each graph.

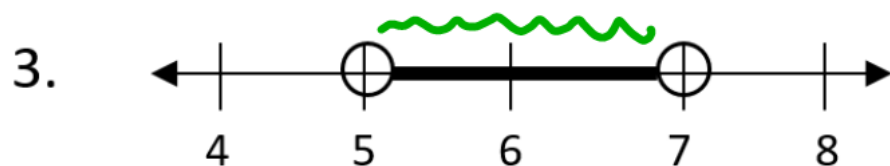


$$\underline{x \leq 8 \text{ OR } x \geq 9}$$



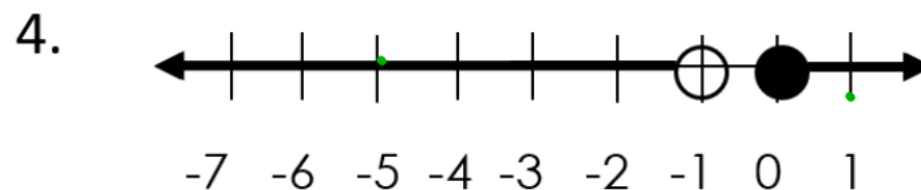
$$\underline{x \geq -2 \text{ AND } x < 0}$$

$$(-2 \leq x < 0)$$



$$\underline{x > 5 \text{ AND } x < 7}$$

$$(5 < x < 7)$$



$$\underline{x < -1 \text{ OR } x \geq 0}$$

①

②

* Only switch : \times or \div **Solve and graph the solution using a number line.**

5.

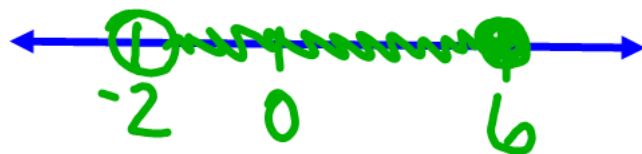
$$\frac{3x}{3} \leq \frac{18}{3}$$

and

$$x + 4 > 2$$

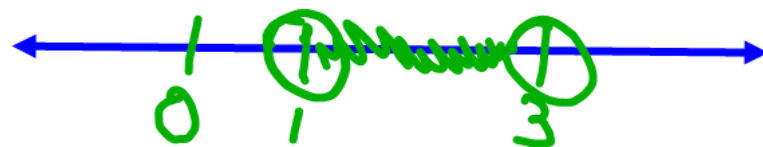
$$\begin{array}{r} \downarrow \\ x \leq 6 \end{array} \text{ and } \begin{array}{r} -4 \quad -4 \\ \hline x > -2 \end{array}$$

$$x > -2 \text{ and } x \leq 6$$



$$6. \quad \begin{array}{r} 3x + 6 > 9 \\ \hline -6 \quad -6 \\ 3x > 3 \\ \hline x > 1 \end{array} \quad \text{and} \quad \begin{array}{r} 6x + 12 < 30 \\ \hline -12 \quad -12 \\ 6x < 18 \\ \hline x < 3 \end{array}$$

$$x > 1 \quad \text{and} \quad x < 3$$



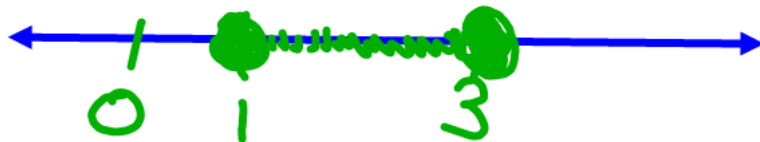
7.

$$\begin{array}{r}
 \leq 2x + 1 \leq 7 \\
 \hline
 \frac{2}{2} \leq \frac{2x}{2} \leq \frac{6}{2}
 \end{array}$$

And

$$1 \leq x \leq 3$$

"1 is $\leq x$ AND x is ≤ 3 "



8.

$$\begin{array}{r} -4 \leq 3x + 2 \leq 11 \\ \hline -2 \qquad \qquad -2 \qquad \qquad -2 \end{array}$$
$$\begin{array}{r} -6 \leq 3x \leq 9 \\ \hline 3 \qquad \qquad 3 \qquad \qquad 3 \end{array}$$

$$\boxed{-2 \leq x \leq 3}$$



9. $x - 3 > 1$ or $x + 2 < 1$

$$10. \quad \begin{array}{r} 2x - 3 \geq 7 \\ +3 \quad +3 \\ \hline 2x \geq 10 \\ \frac{2x}{2} \geq \frac{10}{2} \\ x \geq 5 \end{array} \quad \text{or} \quad \begin{array}{r} x + 5 < 2 \\ -5 \quad -5 \\ \hline x < -3 \end{array}$$

$$x < -3 \text{ or } x \geq 5$$

