

4.2 - Solving Inequalities with Addition and Subtraction

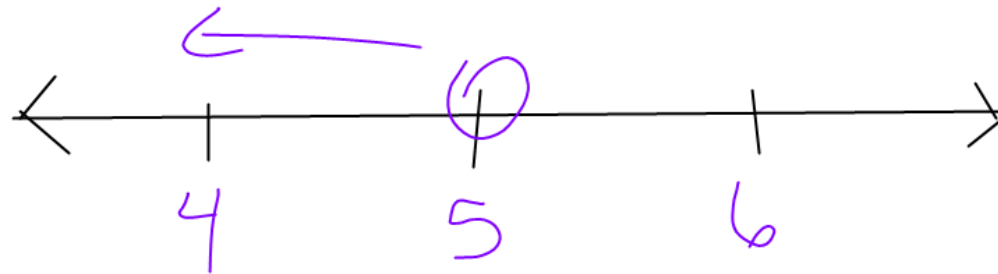
Vocabulary:

none

1 EXAMPLE Solve $p - 4 < 1$. Graph the solution.

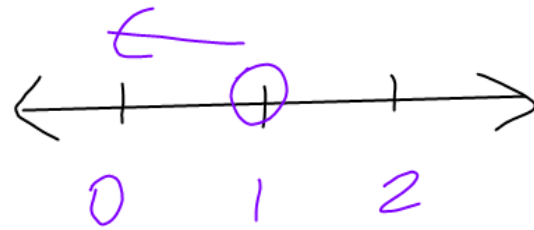
$$\begin{array}{r} +4 \quad +4 \\ \hline p - 4 < 1 \\ p < 5 \end{array}$$

$$p < 5$$

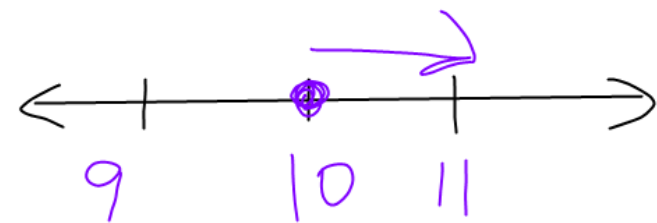


Solve each inequality. Graph and check your solution.

$$\begin{aligned} 5. \quad t - 3 &< -2 \\ +3 \quad +3 & \\ t &< 1 \end{aligned}$$



$$\begin{aligned} 7. \quad 7 &\leq d - 3 \\ +3 \quad +3 & \\ 10 &\leq d \end{aligned}$$



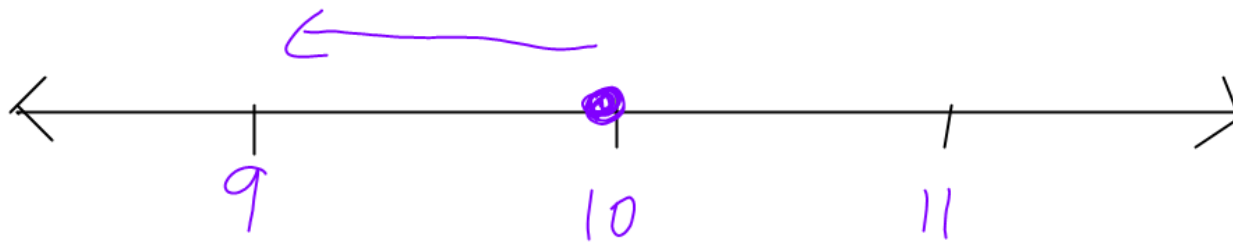
2 EXAMPLE Solve $8 \geq d - 2$. Graph and check your solution.

$$+2 \quad +2$$

$$10 \geq d$$

$$8 \geq 9 - 2$$

$$8 \geq 7 \quad \checkmark$$

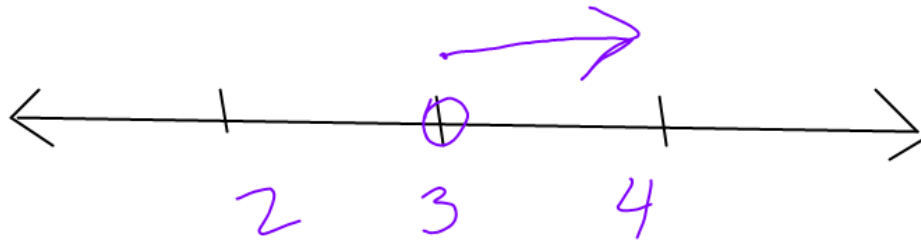


3 EXAMPLE Solve $c + 4 > 7$. Graph the solution.

$$-4 \quad -4$$

$$c > 3$$

$$4 + 4 > 7$$
$$8 > 7 \quad \checkmark$$

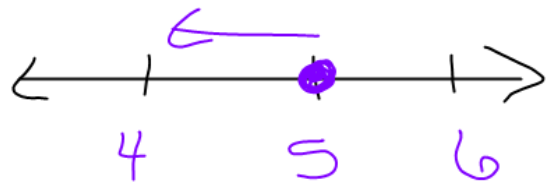


Solve each inequality. Graph and check your solution.

23. $w + 4 \leq 9$

$$\begin{array}{r} -4 \quad -4 \\ \hline \end{array}$$

$$w \leq 5$$

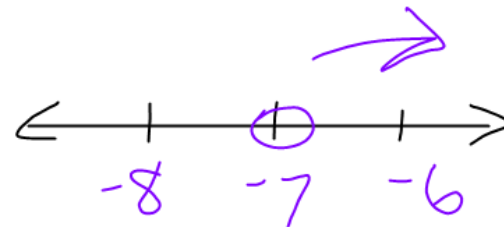


$$\begin{array}{l} 4 + 4 \leq 9 \\ 8 \leq 9 \checkmark \end{array}$$

25. $1 < 8 + b$

$$\begin{array}{r} -8 \quad -8 \\ \hline \end{array}$$

$$-7 < b$$



$$\begin{array}{l} 1 < 8 + -6 \\ 1 < 2 \checkmark \end{array}$$

4 EXAMPLE In order to receive a B in your literature class, you must earn more than 350 points of reading credits. Last week you earned 120 points. This week you earned 90 points. How many more points must you earn to receive a B?

$$120 + 90 + x > 350$$

$$350 < 120 + 90 + x$$

$$\begin{array}{r} \checkmark \\ 210 + x > 350 \\ - 210 \quad \quad - 210 \end{array}$$

$$x > 140 \text{ points}$$

39. **Vacation Budget** Your brother has \$2000 saved for a vacation. His airplane ticket is \$637. Write and solve an inequality to find how much he can spend for everything else.

$$\begin{array}{r} \cancel{637} + x \leq 2000 \\ - \cancel{637} \qquad \qquad -637 \\ \hline \end{array}$$

$$x \leq \$1,363$$

Homework: