

Solving compound inequalities written in compact form:

Get x alone in the "middle section"

Graph each solution set

Write in interval notation

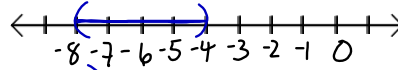
What you do to one section, you must do to all!!!

$$5 < 1 - x < 9$$

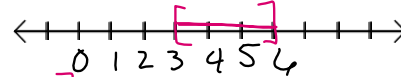
$$\begin{array}{r} -1 \quad -1 \quad -1 \\ \hline 4 < -x < 8 \\ -1 \quad -1 \quad -1 \\ \hline -4 > x > -8 \end{array}$$

$$7 \leq x + 4 \leq 10$$

$$\begin{array}{r} -4 \quad -4 \quad -4 \\ \hline 3 \leq x \leq 6 \end{array}$$



$$(-8, -4)$$

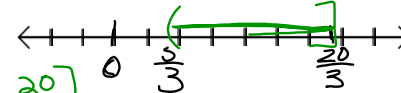


$$[3, 6]$$

$$-3 < 3x - 8 \leq 12$$

$$\begin{array}{r} +8 \quad +8 \quad +8 \\ \hline 5 < 3x \leq 20 \\ \hline 3 \quad 3 \quad 3 \end{array}$$

$$\frac{5}{3} < x \leq \frac{20}{3}$$



$$\left(\frac{5}{3}, \frac{20}{3}\right]$$

$$-3 < 3x - 8 \leq 12$$

$$-3 < 3x - 8$$

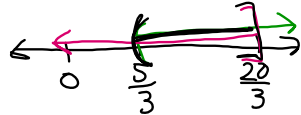
$$5 < 3x$$

$$\frac{5}{3} < x$$

$$x > \frac{5}{3}$$

$$\left(\frac{5}{3}, \frac{20}{3}\right]$$

$$\begin{array}{r} 3x - 8 \leq 12 \\ +8 \quad +8 \\ \hline 3x \leq 20 \\ x \leq \frac{20}{3} \end{array}$$



Solving compound inequalities with fractions.

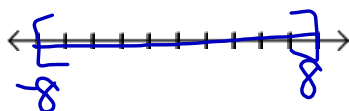
Graph each solution set and write in interval notation:

$$-3 \leq \frac{x}{2} + 1 \leq 5$$

$$\begin{array}{r} -1 \quad -1 \quad -1 \\ \hline -4 \leq \frac{x}{2} \leq 4 \end{array}$$

$$-8 \leq x \leq 8$$

$$[-8, 8]$$

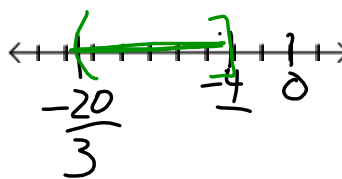


$$-2 < \frac{3x}{4} + 3 \leq 0$$

$$\begin{array}{r} -3 \quad -3 \quad -3 \\ \hline -5 < \frac{3x}{4} \leq -3 \end{array}$$

$$-\frac{20}{3} < x \leq -4$$

$$\left(-\frac{20}{3}, -4\right)$$



$$5. -3 \leq \frac{2x+3}{5} \leq 7$$

$$\begin{array}{r} -15 \leq 2x+3 \leq 35 \\ -3 \quad -3 \quad -3 \\ \hline -18 \leq 2x \leq 32 \end{array}$$

$$-9 \leq x \leq 16$$

