

POD: Solve

$$8-3 \left| \frac{\sqrt{54}}{5}x - \frac{3}{4} \right| \leq -5$$

$$\frac{-3}{-3} \left| \frac{\sqrt{54}}{5}x - \frac{3}{4} \right| \leq \frac{-13}{-3}$$

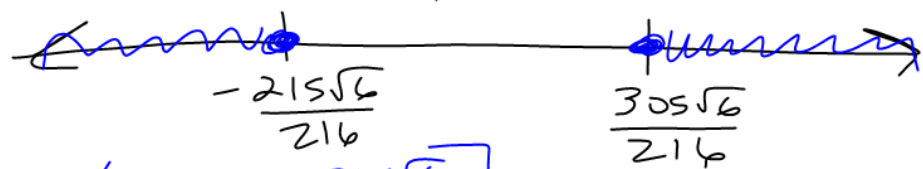
$$\left| \frac{\sqrt{54}}{5}x - \frac{3}{4} \right| \geq \frac{13}{3}$$

$$60 \left(\frac{\sqrt{54}}{5}x - \frac{3}{4} \right) \geq \left(\frac{13}{3} \right) 60 \quad \text{OR}$$

$$\begin{aligned} 12\sqrt{54}x - 45 &\geq 260 \\ 12\sqrt{9\sqrt{6}}x - 45 &\geq 260 \\ 36\sqrt{6}x - 45 &\geq 260 \\ 36\sqrt{6}x &\geq 305 \\ \frac{36\sqrt{6}x}{36\sqrt{6}} &\frac{305}{36\sqrt{6}} \\ x &\geq \frac{305\sqrt{6}}{36\sqrt{6}\sqrt{6}} \\ x &\geq \frac{305\sqrt{6}}{216} \end{aligned}$$

$$\frac{\sqrt{54}}{5}x - \frac{3}{4} \leq \frac{-13}{3}$$

$$\begin{aligned} 36\sqrt{6}x - 45 &\leq -260 \\ 36\sqrt{6}x &\leq -215 \\ \frac{36\sqrt{6}x}{36\sqrt{6}} &\frac{-215}{36\sqrt{6}} \frac{\sqrt{6}}{\sqrt{6}} \\ x &\leq \frac{-215\sqrt{6}}{36\sqrt{6}\sqrt{6}} \\ x &\leq \frac{-215\sqrt{6}}{216} \end{aligned}$$



$$\left(-\infty, \frac{-215\sqrt{6}}{216} \right] \cup \left[\frac{305\sqrt{6}}{216}, \infty \right)$$

- 6.) A tank can be filled by pipe A in 3 hours and by pipe B in 5 hours. When the tank is full, pipe C can drain it in 4 hours. If the tank is initially empty and all three pipes are opened simultaneously, how many hours will it take to fill the tank?

object	rate	time	work
Pipe A	$\frac{1}{3}$	X	$\frac{1}{3}X$
Pipe B	$\frac{1}{5}$	X	$\frac{1}{5}X$
Pipe C	$-\frac{1}{4}$	X	$-\frac{1}{4}X$

$$\frac{\# \text{ jobs}}{\text{time}}$$

$$\bullet \text{ time} = \# \text{ jobs} = 1$$

$$60 \left(\frac{1}{3}X + \frac{1}{5}X - \frac{1}{4}X \right) = (1) 60$$

$$20X + 12X - 15X = 60$$

$$17X = 60$$

$$X = 3.53 \text{ hours}$$