

YOU MAY USE A CALCULATOR TO VERIFY SOLUTIONS, BUT NOT TO PROVIDE THEM.

Show all relevant work!

0. (Review) It takes Karla 4 minutes to fill her 30 gallon bathtub.

(a) Write a linear equation for the amount of water in Karla's tub over time.

(b) What is the slope of your equation and what does it mean?

1. Find the points indicated on the graph without a calculator. Then use a calculator to check your work.

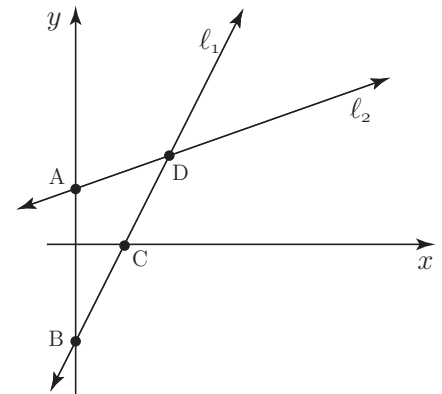
$$\begin{aligned} \ell_1: \quad y &= \frac{8}{5}x - 4 \\ \ell_2: \quad x - 3y &= -10 \end{aligned}$$

A = _____

B = _____

C = _____

D = _____

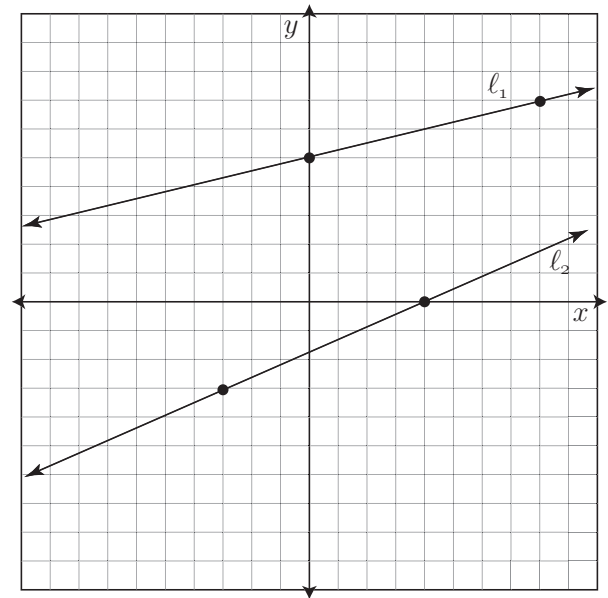


2. Solve by substitution.

$$2x - 7y = 24$$

$$3x - y = 17$$

3. Solve the system graphed below.



4. René leaves a restaurant and gets on the highway averaging 60 mph. Charles leaves from the same restaurant $\frac{1}{4}$ hour later heading in the same direction and averaging 72 mph. How long does it take Charles to catch up to René and how far have they traveled when he catches up?

(a) Write a system of linear equations modeling distance as a function of time for each person.

(b) Solve the system to find the answers to the question.

Bonus: How fast would Charles have to drive in order to catch René in 1 hour?