

1. A trainer for a professional soccer team keeps track of the amount of water players consume throughout practice. The trainer observes that the amount of water consumed is a linear function of the temperature on a given day. The trainer finds that when it is 92°F the players consume about 240 gallons of water, and when it is 81°F the players consume about 196 gallons of water.

Part A: Write a linear function to model the relationship between the gallons of water consumed and the temperature.

Part B: Explain the meaning of the slope in the context of the problem.

2. Which of the following expressions is equivalent to $\frac{1}{16}$?

a) $4^4 \times 4^{-2}$

b) $4^{-2} \times 4^0$

c) $2^5 \times 2^{-1}$

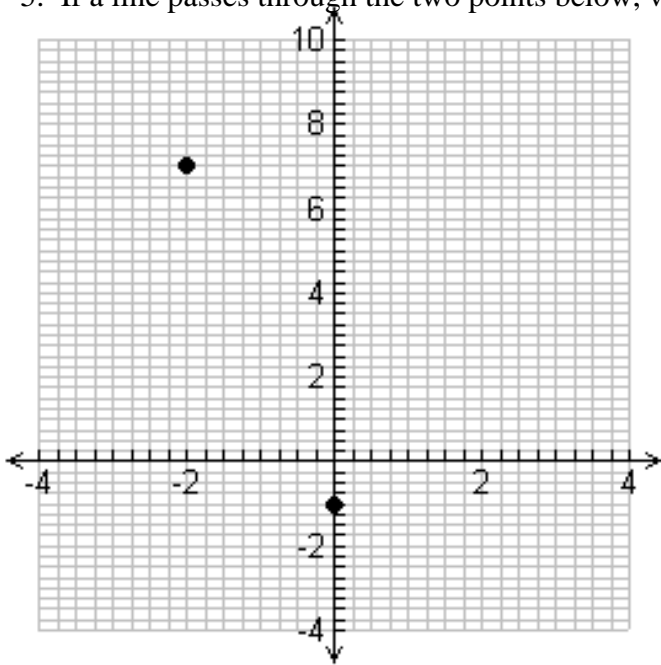
d) $2^{-3} \times 2^{-2}$

3. A computer can do 10,000 operations in 2.5×10^{-7} seconds. How many operations can be done by this computer in two hours? Express your answer in scientific notation.

4. If a line contains the points in the table below, what is the equation of the line?

x	y
-7	-52
-4	-31
0	-3
8	53

5. If a line passes through the two points below, what is the equation of the line?

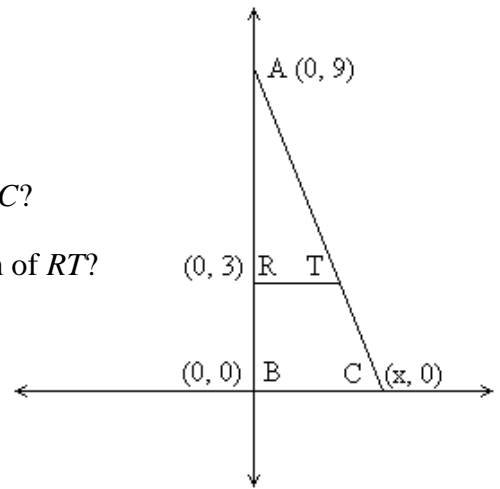


6. In the diagram, $\triangle ABC$ is similar to $\triangle ART$.

Part A: What is the scale factor from $\triangle ABC$ to $\triangle ART$?

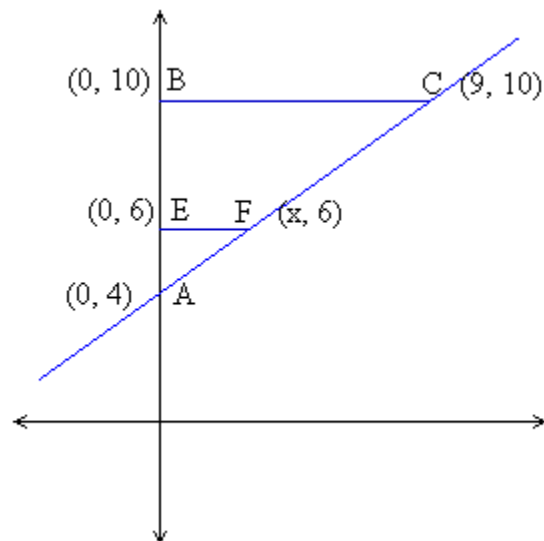
Part B: If the slope of $AC = -3$, what is the value of x for coordinate C ?

Part C: Using the information from parts A and B, what is the length of RT ?



7. In the coordinate plane, $\triangle ABC$ is similar to $\triangle AEF$.

What is the value of x ?



8. Which step would **not** be a possible first step for solving this equation algebraically?

$$\frac{3}{4}(3x-2) + 3\frac{1}{3} = 8 + \frac{2}{3}x$$

- a) multiplying every term in the equation by twelve b) subtracting $\frac{2}{3}x$ from $3x$
- c) multiplying -2 by $\frac{3}{4}$ d) subtracting $3\frac{1}{3}$ from 8

9. Andre currently has a square garden. He wants to redesign his garden and make it into a rectangle with a length that is 4 feet shorter than three times its width. He decides that the perimeter should be 72 feet.

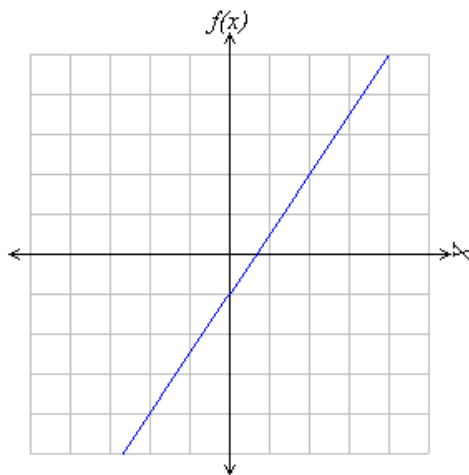
Determine the dimensions, in feet, of his new garden.

10. The three different functions below are represented in three different ways, as shown.

(I)

x	$f(x)$
-6	-8
2	4
8	13

(II)



(III)

$$4y + 8 = 5x$$

Which function has the lowest rate of change? Does any pair of functions have the same rate of change? **Justify your answer.**

11. Of the four linear functions represented below, which has the greatest rate of change?

A) One less than twice a number, y , is three times another number, x .

B)

x	$h(x)$
-12	-13
-3	-1
9	15

C) $8y - 6x = 16$

D)

