

Unit 4 Lesson 2 Cumulative Practice Problems

1. The height of water in a bathtub, w , is a function of time, t . Let P represent this function. Height is measured in inches and time in minutes.

Match each statement in function notation with a description.

A. $P(0) = 0$

B. $P(4) = 10$

C. $P(10) = 4$

D. $P(20) = 0$

1. After 20 minutes, the bathtub is empty.
2. The bathtub starts out with no water.
3. After 10 minutes, the height of the water is 4 inches.
4. The height of the water is 10 inches after 4 minutes.

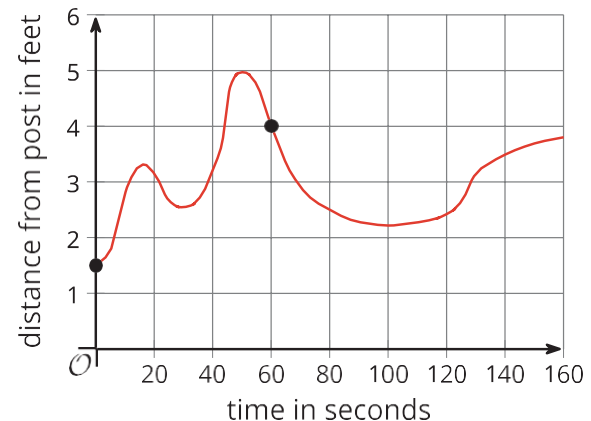
2. Function C takes time for its input and gives a student's Monday class for its output.

a. Use function notation to represent: A student has English at 10:00.

b. Write a statement to describe the meaning of $C(11:15) = \text{chemistry}$.

3. Function f gives the distance of a dog from a post, in feet, as a function of time, in seconds, since its owner left.

Find the value of $f(20)$ and of $f(140)$.



4. Function C gives the cost, in dollars, of buying n apples. What does each expression or equation represent in this situation?

a. $C(5) = 4.50$

b. $C(2)$

5. A number of identical cups are stacked up. The number of cups in a stack and the height of the stack in centimeters are related.

a. Can we say that the height of the stack is a function of the number of cups in the stack? Explain your reasoning.

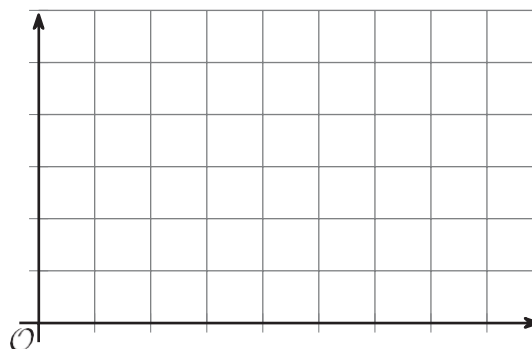
b. Can we say that the number of cups in a stack is a function of the height of the stack? Explain your reasoning.

(From Unit 4, Lesson 1.)

6. In a function, the number of cups in a stack is a function of the height of the stack in centimeters.

a. Sketch a possible graph of the function on the coordinate plane. Be sure to label the axes.

b. Identify one point on the graph and explain the meaning of the point in the situation.



(From Unit 4, Lesson 1.)

7. Solve each system of equations without graphing. Show your reasoning.

a.
$$\begin{cases} -5x + 3y = -8 \\ 3x - 7y = -3 \end{cases}$$

b.
$$\begin{cases} -8x - 2y = 24 \\ 5x - 3y = 2 \end{cases}$$

(From Unit 2, Lesson 16.)