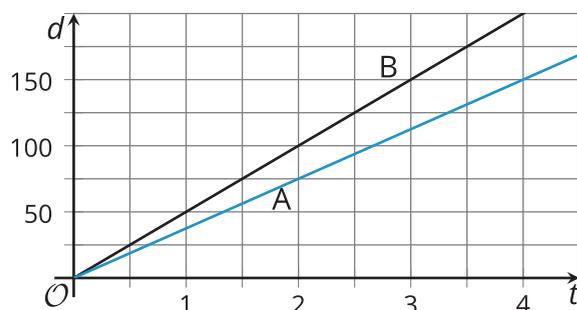


Lesson 8 Practice Problems

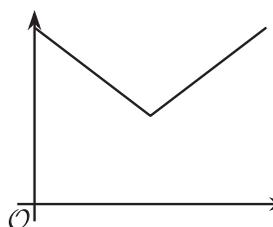
1. The graphs show the distance, d , traveled by two cars, A and B, over time, t . Distance is measured in miles and time is measured in hours.



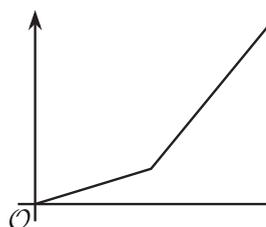
Which car traveled slower? Explain how you know.

2. Here are descriptions of four situations in which the volume of water in a tank is a function of time. Match each description to a corresponding graph.

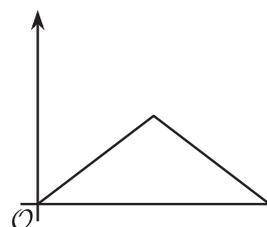
Graph 1



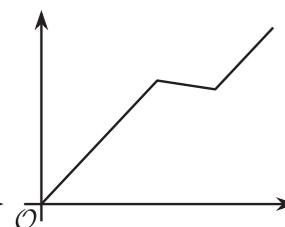
Graph 2



Graph 3



Graph 4



A. An empty 20-gallon water tank is filled at a constant rate for 3 minutes until it is half full. Then, it is emptied at a constant rate for 3 minutes.

1. Graph 1

2. Graph 2

3. Graph 3

B. A full 10-gallon water tank is drained for 30 seconds, until it is half full. Afterwards, it gets refilled.

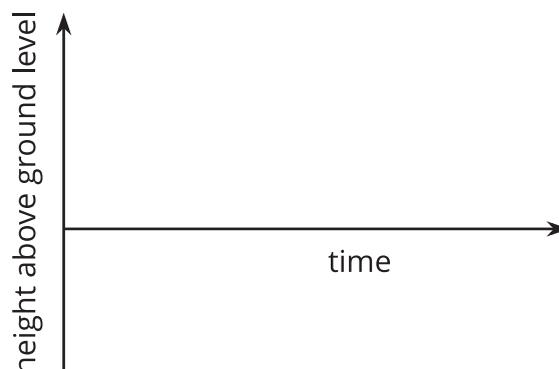
4. Graph 4

C. A 2,000-gallon water tank starts out empty. It is being filled for 5 hours, slowly at first, and faster later.

D. An empty 100-gallon water tank is filled in 50 minutes. Then, a dog jumps in and splashes around for 10 minutes, letting 7 gallons of water out. The tank is refilled afterwards.

3. Clare describes her morning at school yesterday: "I entered the school on the first floor, then walked up to the third floor and stayed for my class for an hour. Afterwards, I had an hour-long class in the basement, and after that I went back to the ground level and sat outside to eat my lunch."

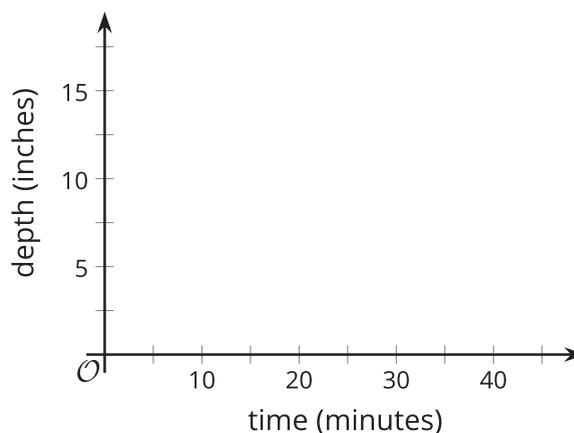
Sketch a possible graph of her height from the ground floor as a function of time.



4. Tyler filled up his bathtub, took a bath, and then drained the tub. The function gives the depth of the water, in inches, t minutes after Tyler began to fill the bathtub.

These statements describe how the water level in the tub was changing over time. Use the statements to sketch an approximate graph of function.

- $B(0) = 0$
- $B(1) < B(7)$
- $B(9) = 11$
- $B(10) = B(23)$
- $B(20) > B(40)$



5. Two functions are defined by these equations:

$$f(x) = 5.1 + 0.8x$$

$$g(x) = 3.4 + 1.2x$$

Which function has a greater value when x is 3.9? How much greater?

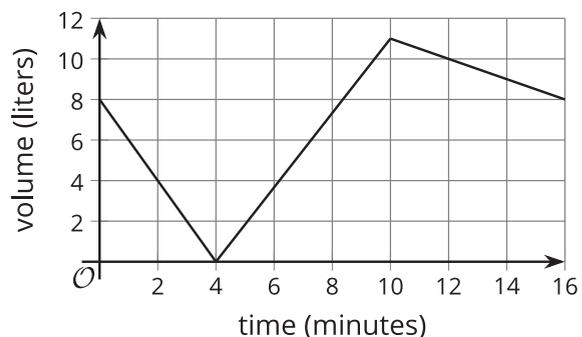
(From Unit 4, Lesson 5.)

6. Function f is defined by the equation $f(x) = 3x - 7$. Find the value of c so that $f(c) = 20$ is true.

(From Unit 4, Lesson 5.)

7. Function V gives the volume of water (liters) in a water cooler as a function of time, t (minutes).

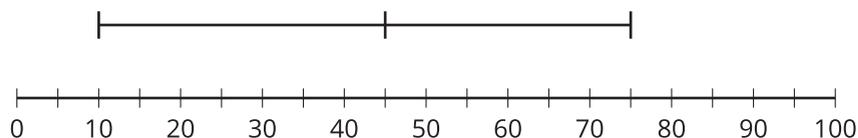
This graph represents function V .



- What is the greatest water volume in the cooler?
- Find the value or values of t that make $V(t) = 4$ true. Explain what the value or values tell us about the volume of the water in the cooler.
- Identify the horizontal intercept of the graph. What does it tell you about the situation?

(From Unit 4, Lesson 6.)

8. Noah draws this box plot for data that has measure of variability 0.



Explain why the box plot is complete even though there do not appear to be any boxes.

(From Unit 1, Lesson 15.)