ALBERT

Name _____ Date _____

Interpreting Key Features of Graphs Worksheet

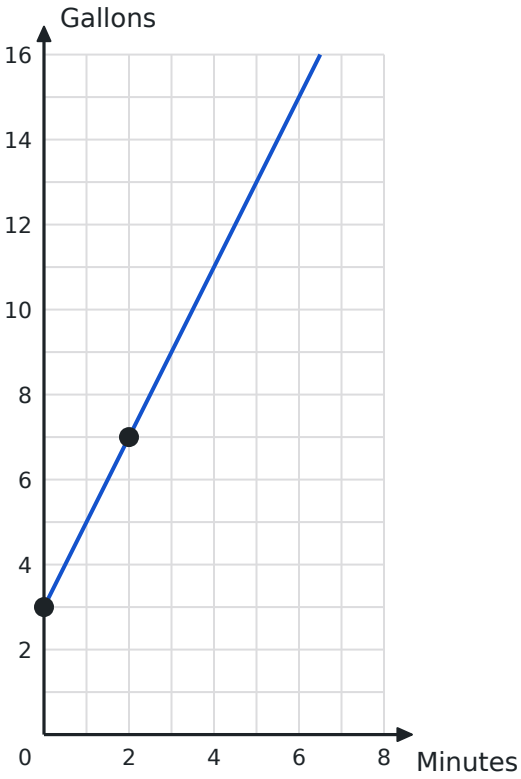
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> For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.

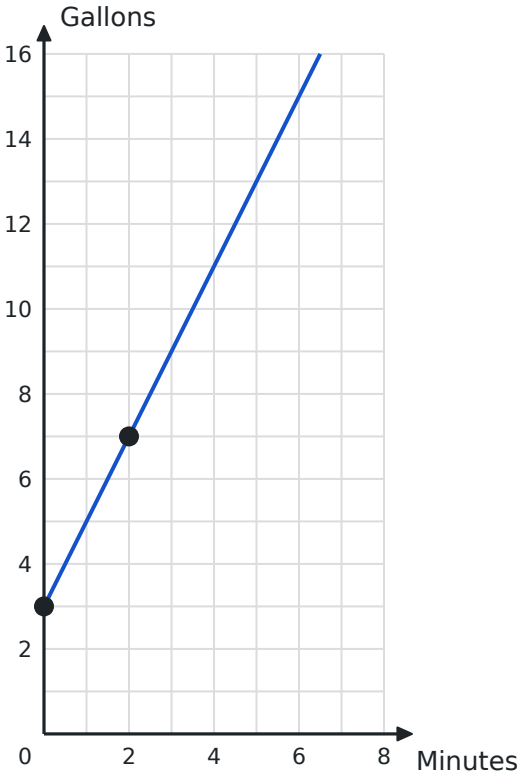
Practice

Builds the skill step by step.

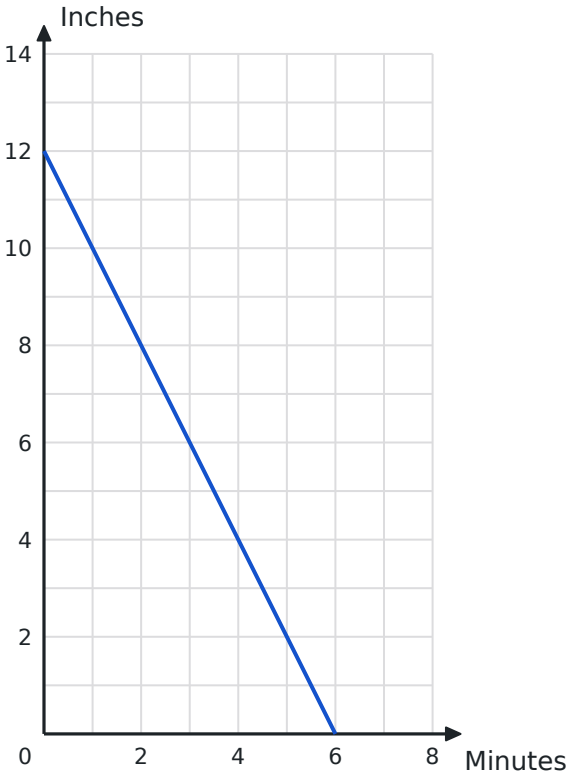
1. The graph shows the water in a tank, in gallons, after x minutes. What is the y-intercept?



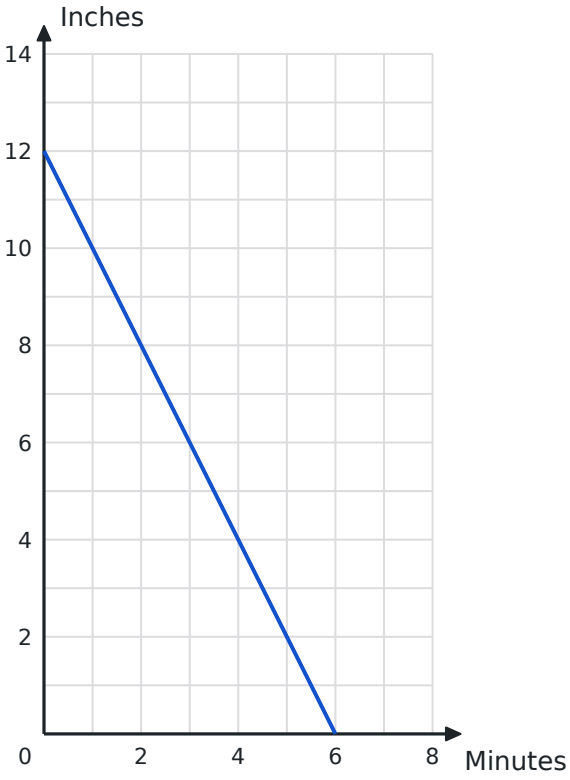
2. The graph shows the water in a tank, in gallons, after x minutes. How many gallons does the tank gain each minute?



3. The graph shows the depth of the water, in inches, in a bathtub that is draining. At what time is the tub empty?



4. The graph shows the depth of the water in a draining bathtub. As the minutes go by, the depth of the water is...



A. increasing

B. decreasing

C. staying the same

D. increasing, then decreasing

5. A ball is thrown from the ground. The table shows its height after each second. What is the greatest height in the table?

Time (seconds)	Height (feet)
0	0
1	15
2	20
3	15
4	0

6. A ball is thrown from the ground. The table shows its height after each second. At what time does the ball come back to the ground?

Time (seconds)	Height (feet)
0	0
1	15
2	20
3	15
4	0

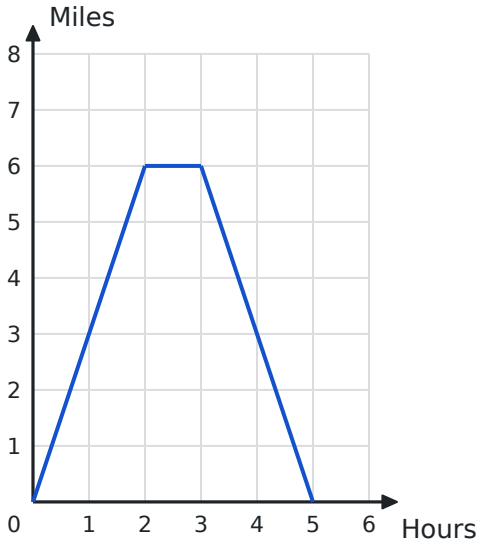
A. 0 seconds

B. 2 seconds

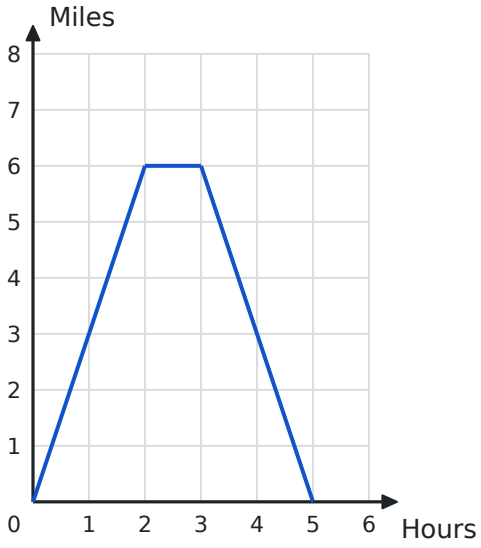
C. 3 seconds

D. 4 seconds

7. The graph shows how far a cyclist is from home, in miles, after x hours. For how many hours is the cyclist stopped? (Look for the flat part of the graph.)



8. The graph shows how far a cyclist is from home, in miles, after x hours. How far from home is the cyclist at the farthest point?



9. A graph starts at (0, 5), goes down to (3, 2), and then goes up. Which statement is true?

   A. The graph is increasing the whole way.

   B. The graph is decreasing the whole way.

   C. The point (3, 2) is a minimum.

   D. The point (3, 2) is a maximum.

10. A pool holds 600 gallons of water when the draining starts (minute 0). It is drained at 50 gallons per minute. The graph of gallons against minutes crosses the y-axis at what point?

ALBERT

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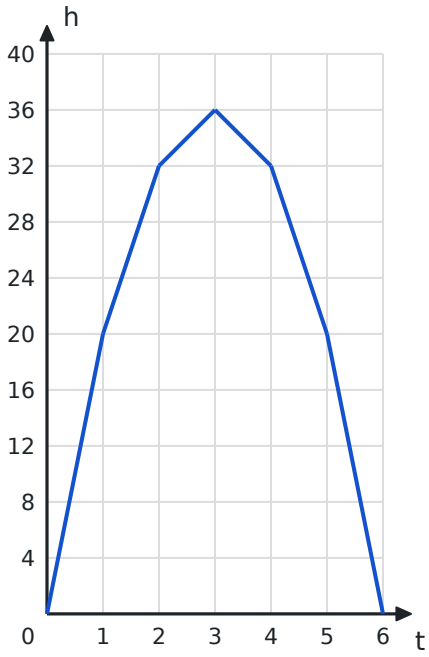
Interpreting Key Features of Graphs Worksheet

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On Level

Grade-level practice.

1. A ball is thrown upward. Its height h in feet after t seconds is graphed. What is the maximum height?



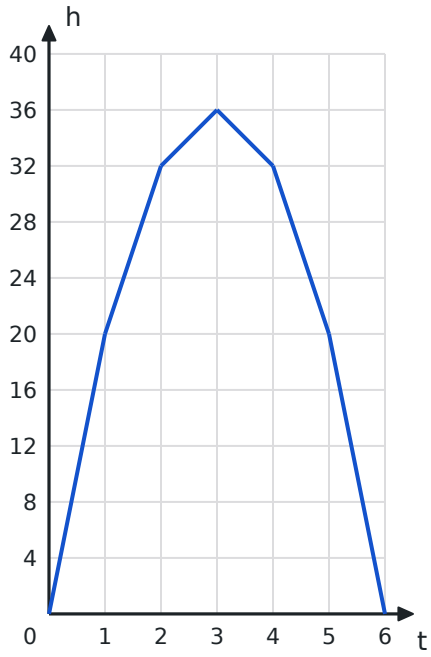
A. 2 feet

B. 6 feet

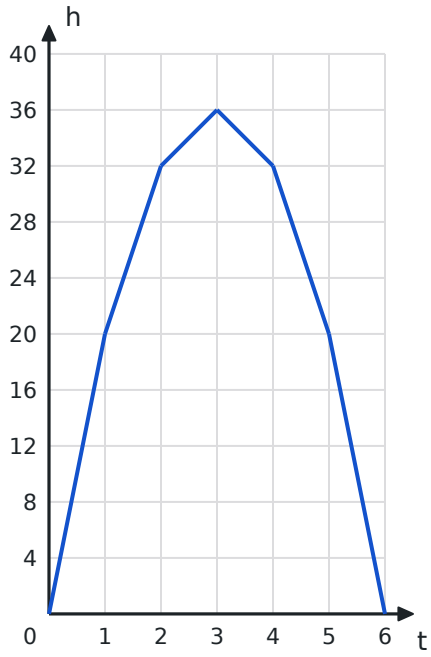
C. 3 feet

D. 36 feet

2. A ball is thrown upward. Its height h in feet after t seconds is graphed. For which times t is the height greater than 0?



3. A ball is thrown upward. Its height h in feet after t seconds is graphed. On which interval of time is the height increasing?



4. The table shows the balance in Jada's savings account. What is the rate of change, in dollars per month?

Months	Balance (dollars)
0	150
2	210
4	270
6	330

5. The function $f(t)$ gives the temperature, in °F, of a cup of coffee t minutes after it is poured. Here $f(0) = 190$. What does this mean?

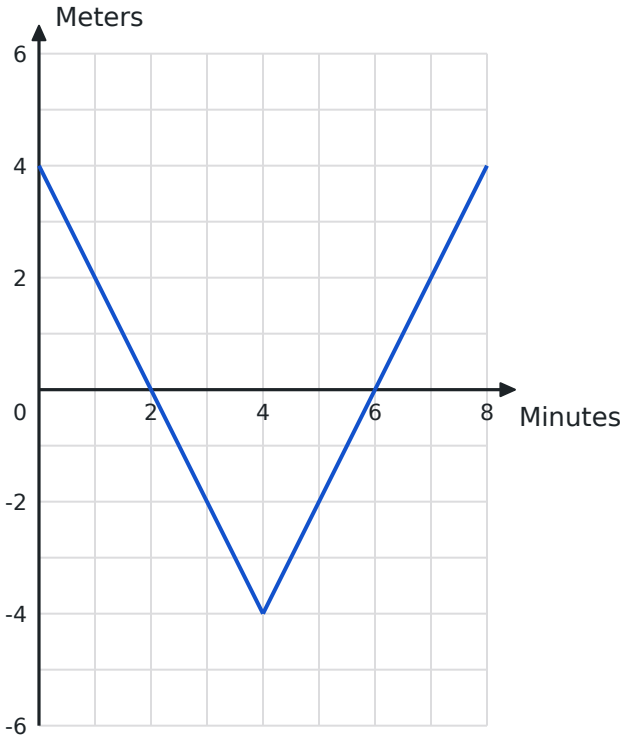
   A. The coffee loses 190 degrees every minute.

   B. The coffee is 190°F at the moment it is poured.

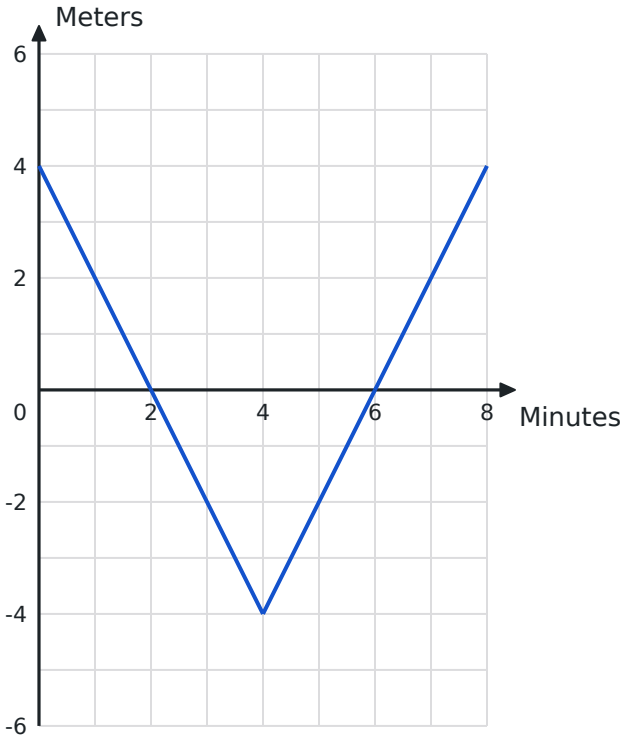
   C. The coffee is cool after 190 minutes.

   D. The coffee reaches room temperature at 190 minutes.

6. The graph shows the elevation of a train, in meters, compared with street level (0) after x minutes. For which times is the train below street level?



7. The graph shows the elevation of a train, in meters, compared with street level (0) after x minutes. What is the lowest elevation the train reaches?



8. The table shows the number of bacteria in a lab dish, in thousands, after each hour. Which statement best describes how the number of bacteria changes?

Hours	Bacteria (thousands)
0	100
1	200
2	400
3	800

A. It grows by more each hour than the hour before.

B. It stays the same.

C. It grows by the same amount, 100, each hour.

D. It gets smaller each hour.

9. A plane climbs for 10 minutes, flies level for 120 minutes at 30,000 feet, and then descends for 20 minutes. On a graph of altitude against minutes after takeoff, at what time does the graph first start going down?

10. A phone battery is at 80% and drains 4% for each hour of video. After how many hours does the graph of battery percent against hours cross the x-axis?

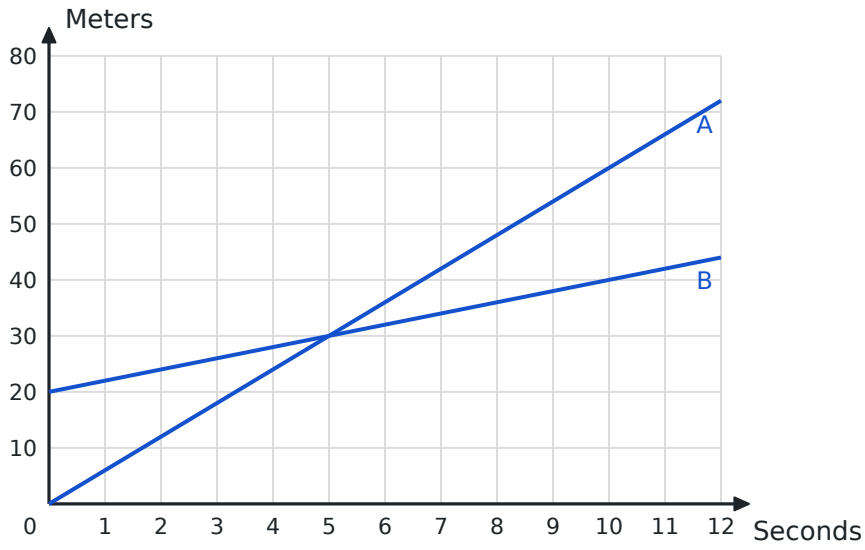
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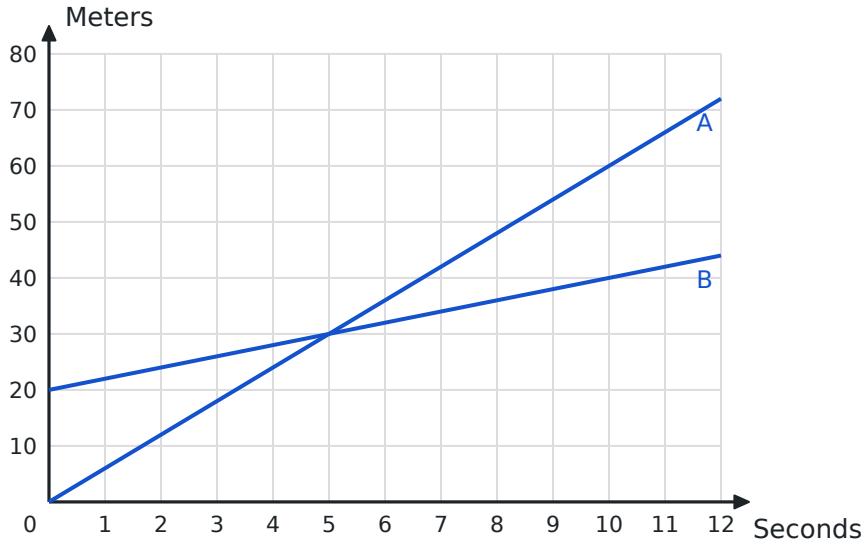
Challenge

Multi-step and word problems that stretch it.

1. The graph shows the distance of Runner A and Runner B from the start line. At what time are the two runners the same distance from the start line?



2. The graph shows the distance of Runner A and Runner B from the start line. How many meters per second faster is Runner A than Runner B?



3. Dani looks at the table and says, “The lowest point of the graph is at $x = -2$, because -2 is the smallest x-value.” At which x-value is $f(x)$ actually lowest?

x	f(x)
−2	8
−1	2
0	0
1	2
2	8

4. Which statement describes the function g in the table?

x	g(x)
0	5
1	2
2	1
3	2
4	5

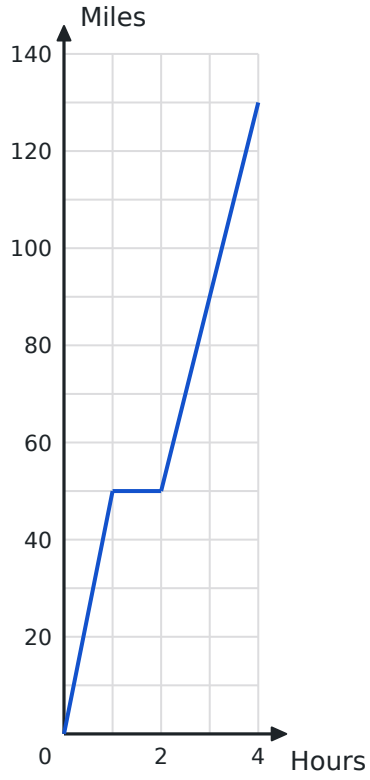
A. It increases for every value of x in the table.

B. It decreases for every value of x in the table.

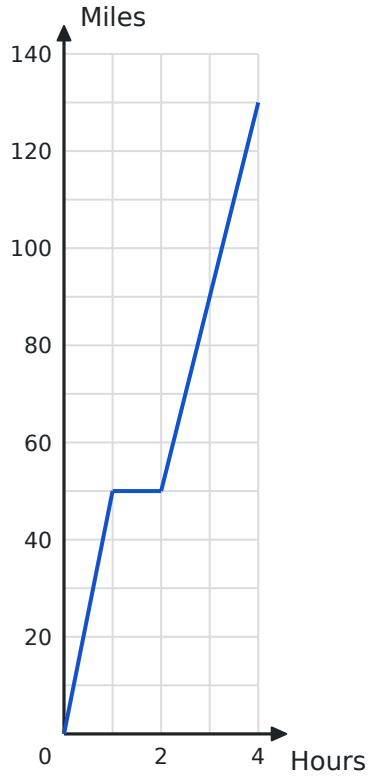
C. It increases to a maximum of 5 at x = 2, then decreases.

D. It decreases to a minimum of 1 at x = 2, then increases.

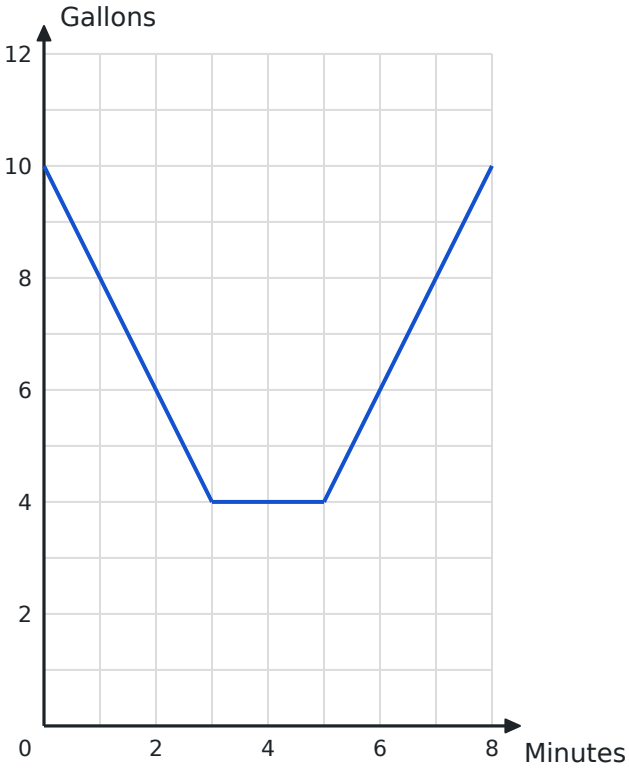
5. The graph shows a car’s distance from its starting point after x hours. What is the car’s greatest speed on any single part of the trip?



6. The graph shows a car’s distance from its starting point after x hours. What is the car’s average speed for the whole 4-hour trip?



7. The graph shows the gallons of water in a tub over x minutes. Which story matches the graph?



A. The tub drains for 5 minutes, then refills for 3 minutes.

B. The tub drains for 3 minutes, then drains faster for 5 minutes.

C. The tub drains for 3 minutes, stays the same for 2 minutes, then refills for 3 minutes.

D. The tub fills for 3 minutes, stays the same for 2 minutes, then drains for 3 minutes.

8. The table shows values of a function f. From the table, what are the x-intercepts of the graph of f?

x	f(x)
−1	12
0	5
1	0
2	−3
3	−4
4	−3
5	0
6	5

9. The table shows values of a function f. Over which interval of x-values in the table is f decreasing?

x	f(x)
−1	12
0	5
1	0
2	−3
3	−4
4	−3
5	0
6	5

10. The graph shows a company's profit, in thousands of dollars, after x months. Maria says, "The graph is rising from month 0, so the company has been making a profit from the start." After how many months does the company break even (profit = 0)?

