

Chapter 4 Test Study Guide

1) Beth’s monthly charge for Internet access c is represented by the function $c = 12 + 2.50h$, where h represents the number of hours of usage during a month. What is the total charge for a month in which Beth used the Internet for 9 hours?

2) Which ordered pair is *not* a point on the graph of $y = \frac{1}{2}x - 7$?

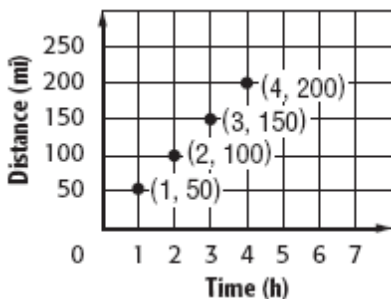
A) $\left(1, -6\frac{1}{2}\right)$

B) $(-2, -8)$

C) $(0, -7)$

D) $(2, 8)$

3) The graph below shows Jeremy’s distance from home each hour he is on a car trip. How many miles will he be from home after 10 hours?



4) Juana’s monthly cost of sending text messages can be represented by the function $y = 0.05x$, where y represents the total cost and x represents the number of text messages. The table shows Tanya’s monthly cost of sending text messages. Which statement is *not* true?

Messages	Cost (\$)
20	10
30	11
40	12
50	13

A) Tanya’s initial cost is greater than Juana’s initial cost.

B) Tanya pays more per text than Juana.

C) Juana pays \$7.50 for sending 150 text messages.

D) Tanya pays \$20 for sending 150 text messages.

Chapter 4 Test Study Guide

5) Which table represents a linear function?

A)

x	5	3	1	-1
y	6	8	10	12

B)

x	-3	-1	1	3
y	1	4	9	16

C)

x	-2	0	2	4
y	0	1	3	6

D)

x	7	4	1	-2
y	-1	-3	-6	-9

6) Which of the following represents a nonlinear function?

A) $y = 5x + 7$

B) $y = x^2$

C) $y = -2x$

D) $y = x$

7) Nate has a certain number of songs on his MP3 player. Each week, he plans to add 2 more songs. After 5 weeks, he had 25 songs on his MP3 player. Which statement is true?

A) Nate adds 5 songs on his MP3 player per week.

B) Nate adds 10 songs on his MP3 player per week.

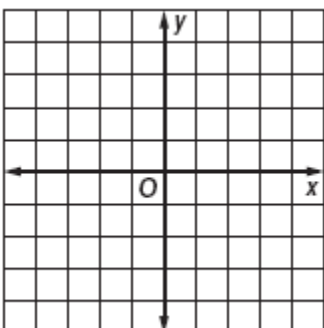
C) The initial number of songs on Nate's MP3 player is 15.

D) The initial number of songs on Nate's MP3 player is 2.

8) State the domain and range for the following relation.

$\{(-4, -1), (3, 2), (0, -3), (1, 2)\}$

9) Graph $y = x^2 - 2$.



Chapter 4 Test Study Guide

For questions 10 – 11, consider the following situation: *The grocery store sells bacon for \$5.30 per pound.*

10) Write a function to represent the situation.

11) Is the function continuous or discrete? Explain.

12) Which equation represents a linear function?

A) $y = -x^2 - 4$

B) $-3x^2 + 1 = y$

C) $y = x^2$

D) $x + 2 = y$

For questions 13 – 15, consider the following situation: *The total cost of renting a carpet cleaner from Carpets Inc. is represented by the function $y = 20x + 15$, where x represents the number of days and y represents the total cost. The cost of renting a carpet cleaner from Clark Cleaners is shown in the table.*

Number of Days	Cost (\$)
2	60
3	85
4	110
5	135

13) Compare the functions' rates of change.

14) Find and interpret the initial value of renting from Clark Cleaners.

15) Which company should you use if you rent the carpet cleaner for 6 days?

Chapter 4 Test Study Guide

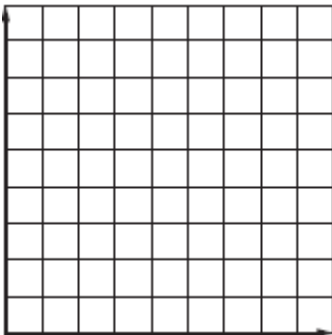
16) A circle has a radius of r inches. The area of a circle is represented by the expression $3.14r^2$. The area of a circle is a function of the radius. Does this situation represent a linear or nonlinear function? Explain.

For questions 17 – 20, consider the following situation: *The deli in the grocery store gives each customer a free cup.*

17) Write a function to represent the situation.

18) Make a function table to find the total cost of the coffee if 5, 10, 15, or 20 customers come in.

19) Graph the function.



20) Is the function continuous or discrete? Explain.

Chapter 4 Test Study Guide

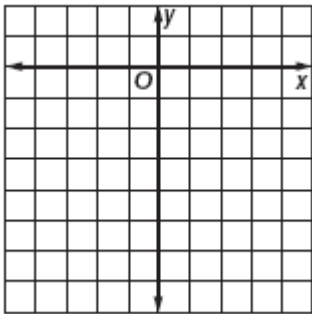
21) Consider the function $y = 2x - 3$.

a. Complete the following function table.

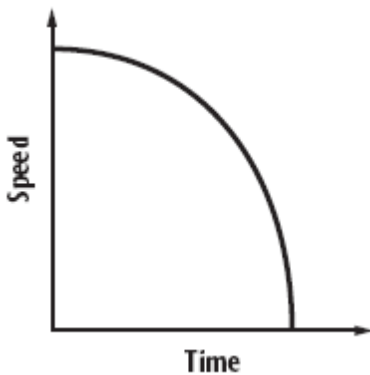
x	$2x - 3$	y
-2		
-1		
0		
1		

b. Is the function *linear* or *nonlinear*? How can you determine this using the table?

c. Graph the function. Connect the points and describe the graph.



22) The graph shows the speed of a car.

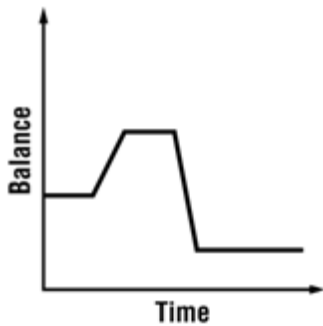


Which statement is true?

- A) The speed is increasing.
- B) The speed is decreasing.
- C) The speed is constant.
- D) The speed is increasing then decreasing.

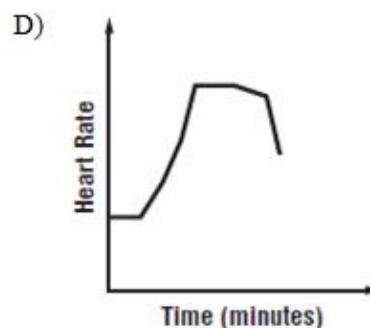
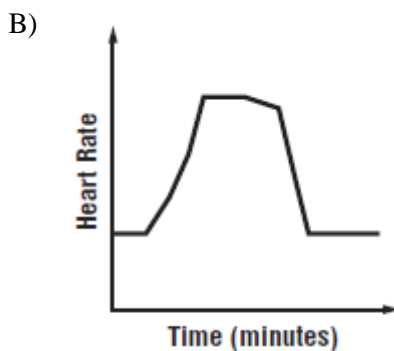
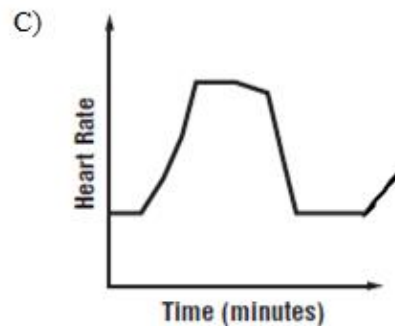
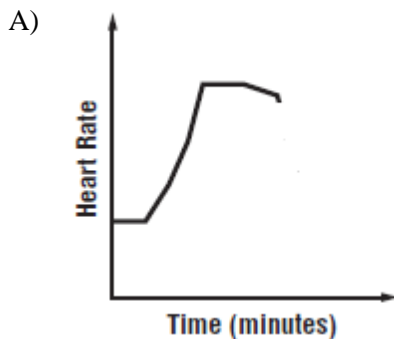
Chapter 4 Test Study Guide

23) **MONEY** The graph below shows the amount of money in the Soccer Club's account. Which of the following best describes the graph?



- A) The Soccer Club started with no money, then raised some money, and then spent a good portion of the balance.
- B) The Soccer Club started with a balance, raised some money, then spent a good portion of the balance.
- C) The Soccer Club started with a balance, spent a good portion of the money, and then raised some more money.
- D) The Soccer Club started with a balance, raised some money, and did not spend or raise any more money.

24) **EXERCISE** Ryan monitored his heart rate while exercising. During the warm up, his heart rate increased slowly. While exercising, his heart rate increased rapidly and then steadied. During cool down, his heart rate lowered quickly. Which graph represents the situation?



Chapter 4 Test Study Guide

25) Sketch a qualitative graph that represents a cup of hot coffee cooling down to room temperature quickly.

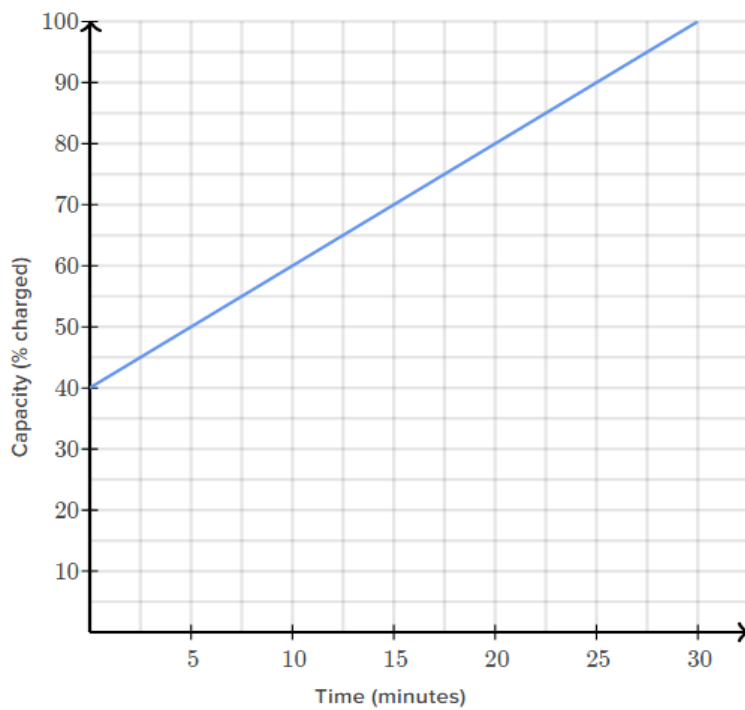


Indicate the answer choice that best completes the statement or answers the question.

A battery is charged.

The percentage of the battery's capacity that is charged as a function of time (in minutes) is graphed.

26)



How many percents are added every 6 minutes?

- A) 12 percent
- B) 10 percent
- C) 40 percent
- D) 2 percent

Chapter 4 Test Study Guide

- 27) Agent Hunt transferred classified files from the CIA mainframe onto his flash drive. The drive had some files on it before the transfer, and the transfer happened at a rate of 4.4 megabytes per second. After 32 seconds, there were 384 megabytes on the drive. The drive had a maximum capacity of 1000 megabytes.

How full was the drive when the transfer began?

megabytes

How long from the time that Agent Hunt started the transfer did it take the drive to be completely full?

seconds

- 28) Urpi wants to buy towels online. There are two stores with the kind of towel she wants.

The first store charges \$20 per towel, and the delivery charge is \$25.

The total price (in dollars) of an order from the second store (including delivery) as a function of the number of towels is given by the following function:

$$P(n) = 35 + 18n$$

A) Which store charges more per towel?

B) Urpi needs 15 towels. Which store is cheaper for her?

Chapter 4 Test Study Guide

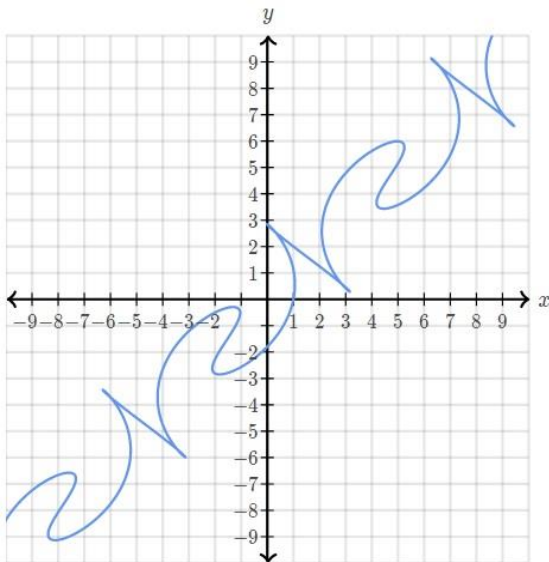
- 29) A group of teachers discussed their hobbies. The table lists the teachers' hobbies according to the subjects they teach.

Can a teacher's hobby be represented as a function of the subject that teacher teaches?

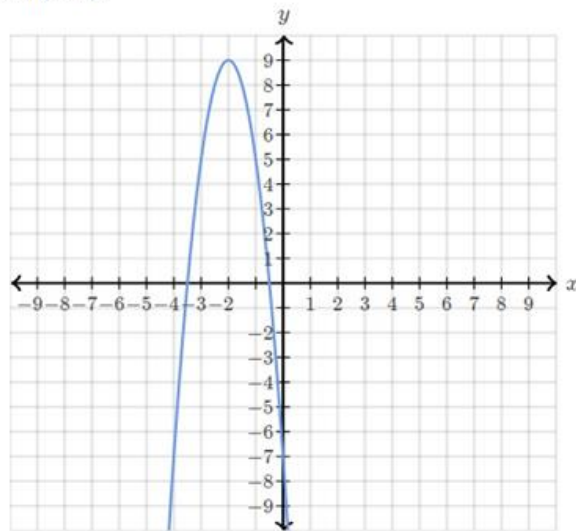
Subject	Hobby
English	Wave surfing
History	Play cards
Math	Rock climbing
Gym	Play chess
Math	Rock climbing
Spanish	Reading books
English	Wave surfing
Physics	Wind surfing

- 30) Which graph(s) represent(s) a function?

Graph A:



Graph B:



- A) Graph A only
- B) Graph B only
- C) Both Graph A and B
- D) Neither Graph A or B