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Of the following sets, which represents a function?

Situation R = {student's name, the student's favorite color}

Situation Q = {student's name, the student's favorite song}

a. Only R
b. Neither R nor Q
c. Both R and Q
d. Only Q

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Which set of ordered pairs represents a function?

a. {(4, 9), (5, 5), (6, –9), (0, –8)}
b. {(4, 8), (5, –6), (5, 5), (6, 2)}
c. {(4, –8), (4, 3), (6, –1), (6, –6)}
d. {(4, –7), (5, 8), (6, 7), (6, 6)}

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If $y + 2 = 5x$, which of the following sets represents possible inputs and outputs of the function, represented as ordered pairs?

a. {(2, 8), (3, 13), (–5, –27)}
b. {(–3, –18), (2, 8), (0, –2)}
c. {(–1, –7), (–1, –6), (–2, –12)}
d. {(–3, –17), (–1, –7), (–1, –8)}

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A watering can dispenses water at the rate of 0.75 of a gallon per minute. The original volume of water in the can was 8 gallons. Which set of ordered pairs shows the volume of water in the can in gallons (y), as a function of time in minutes (x), from the first minute after the can starts dispensing water?

a. {(1, 7.25), (2, 6.5), (3, 5.75)}
b. {(7.25, 1), (6.5, 2), (5.75, 3)}
c. {(1, 8), (2, 7.25), (3, 6.5)}
d. {(8, 1), (7.25, 2), (6.5, 3)}

Jeff provides photos for two online sites: site A and site B.

Site A pays $1.05 for every photo Jeff provides.

The amount in dollars (y) site B pays as a function of the number of photos provided (x) is represented by the equation y = 0.85x.

How much more was Jeff paid at site A than at site B, if he provided seven photos for each site?

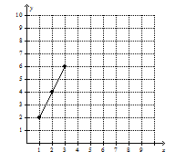
a. $1.40
b. $1.25
c. $1.55
d. $1.45

Two functions, function A and function B, are shown below.

Function A

x	y
7	21
8	24
9	27

Function B



a. The rate of change of both functions is 2.
b. The rate of change of both functions is 3.
c. The rate of change of function B is greater than the rate of change of function A.
d. The rate of change of function A is greater than the rate of change of function B.

You and your buddy spend a certain amount of money from your accounts each week at a pet shelter. The table shows the relationship between the amount of money (y) remaining in your account and the number of weeks (x):

Function 1	
Number of weeks (x)	Amount remaining in dollars (y)
1	65
2	50
3	35
4	20

The equation shows the relationship between the amount of money (y) remaining in your buddy's account and the number of weeks (x):

Function 2:

$y = -13x + 90$

Which statement explains which function shows a greater rate of change?

a. Function 1 shows a greater rate of change, because you spend $15 each week and your buddy spends $13 each week.
b. Function 1 shows a greater rate of change, because you spend $15 each week and your buddy spends $90 each week.
c. Function 2 shows a greater rate of change, because you spend $65 each week and your buddy spends $13 each week.
d. Function 2 shows a greater rate of change, because you spend $15 each week and your buddy spends $13 each week.

A standard showerhead in Reyna's house dispenses 7 gallons of water per minute. Reyna changed this showerhead to an energy-saving one. The equation shows the amount of water dispensed, y, as a function of the number of minutes, x, for the new showerhead.

$y = 3x$

How much water does Reyna save each day with the change in showerheads if he uses the shower for 8 minutes each day?

a. 27 gallons
b. 12 gallons
c. 56 gallons
d. 32 gallons

Which of the tables represents a function?

Table J	
x	y
−2	−1
0	3
0	4
−7	−8

Table K	
x	y
−4	−6
−5	7
2	−9
2	1

Table M	
x	y
3	4
1	−8
6	7
8	7

a. K
b. M
c. J

Which of the following is a linear function?

a. $y = -6x^4$
b. $y = \frac{6}{x} - 6$
c. $9x = y + 9$
d. $y = 4x^4 - 1$

Which of the following describes a linear function?

a. Its y-values increase at a nonconstant rate as its x-value decreases.
b. It is V shaped and passes through the origin.
c. It is a straight line in one portion and a curve in another portion.
d. Its y-values increase at a constant rate as its x-value increases.

Look at this function:

x	y
−19	−11
−17	−7
−15	−3
−13	1

Jenna said the function is non-linear.

Mina said the function is linear.

Which of the following explains who is correct?

a. Jenna, because the point (−19, −11) does not lie on the straight line that contains the other points.
b. Mina, because the point (−13, 1) does not lie on the straight line that contains the other points.
c. Mina, because for every 2-unit increase in x, there is an increase in y by 4.
d. Jenna, because for every 4-unit increase in x, there is an increase in y by 2.

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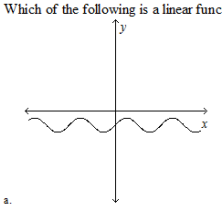
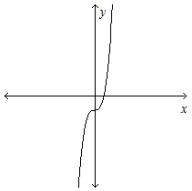
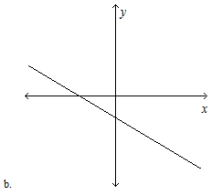
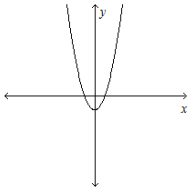
Which of the following is a linear function?

a. 

c. 

b. 

d. 

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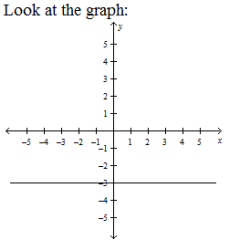
Look at the graph:



What is the relationship between x and y?

a. y increases as x increases
b. y stays constant as x increases
c. y decreases as x increases
d. y and x stay constant

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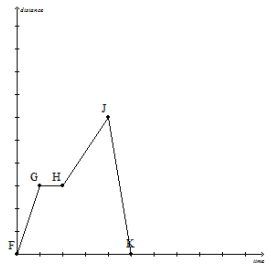
The graph shows the distance a cyclist traveled in yards (y) as a function of time in seconds (x). The graph is divided into four segments.



Which segment on the graph did the cyclist complete after getting a drink of water?

a. Segment HJ
b. Segment GH
c. Segment JK
d. Segment FG

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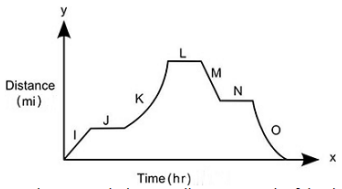
The graph shows a journey in a car. Which of the statements **most** likely describes the journey at the portion of the graph labeled K?



a. The car travels the same distance per unit of time because the portion shows a linear, increasing function.
b. The car travels different distances per unit of time because the portion shows a linear, increasing function.
c. The car travels different distances per unit of time because the portion shows a nonlinear, increasing function.
d. The car travels the same distance per unit of time because the portion shows a nonlinear, increasing function.