Career Readiness Courseware & Credentials

winmath Career-Infused Digital Instruction

Level 4: Functions Pre-Test

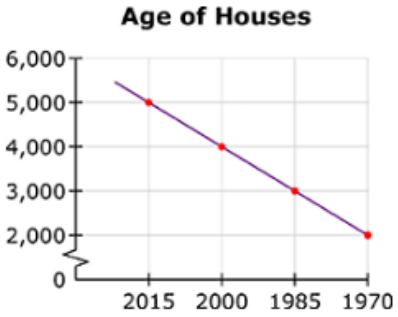
Question 1:

The following equation and graph describe two functions used by tax assessors to deteremine value of a house.

Function 1:

Number of Bedrooms Formula $y = \frac{1}{2}x + 1$

Function 2:



Which statement is true?

a. Function 1 is decreasing and function 2 is increasing.

b. Function 2 is decreasing and function 1 is increasing.

c. Both functions are decreasing.

d. Both functions are increasing.

Question 2:

Function 1: The tax assessor calculates the square footage of a building using the function $y = x^2$.

Function 2: The tax assessor calculates the increase in property value due to the number of bathrooms using the function $y = 10{,}000x$.

Which function is linear?

a. Function 2

b. Function 1

c. Both functions are linear.

d. Neither function is linear.

Continue

Question 3:

The table shows the price of five different houses in a new housing development. All of the houses have the same basic price. Each special feature adds an equal amount to the cost of the house.

House	Special Feature	Cost
1	None	$210,000
2	Garage and swimming pool	$250,000
3	Finished basement	$230,000
4	Fireplace, garage, and swimming pool	$270,000
5	Garage, finished basement, fireplace, and swimming pool	$290,000

Write a function to show the relationship between the number of special features (x) and the purchase price (y). (Do not include dollar signs in your function.)

Question 4:

Which set of ordered pairs (x, y) does not describe a function of x?

a. {(0, 4), (1, 4), (2, 4), (3, 4), (4, 4)}

b. {(0, 0), (1, 1), (2, 2), (3, 3), (4, 4)}

c. {(4, 0), (4, 1), (4, 2), (4, 3), (4, 4)}

d. {(0, 4), (1, 3), (2, 2), (3, 1), (4, 0)}

Question 5:

This table shows some pairs of values for a linear function.

x	–2	–1	0	1	2
y	4	$3\frac{1}{2}$	3	$2\frac{1}{2}$	2

A different linear function is defined by this equation.

$y = -2x$.

Which statement is true regarding the two functions?

a. The y-intercept of both functions is 0.

b. The y-intercept of both functions is not 0.

c. As the values of x increase, both functions increase in value.

d. As the values of x increase, both functions decrease in value.

Question 6:

Joanna is using these formulas to solve a geometry problem.

$A = x(2x)$

$P = 2x + 2(2x)$

Which formula represents a linear function?

a. both formulas

b. neither formula

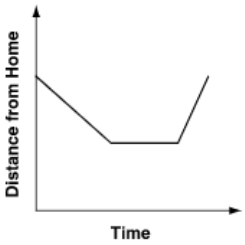
c. only the formula $A = x(2x)$

d. only the formula $P = 2x + 2(2x)$

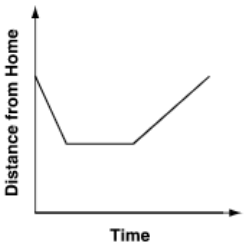
Question 7:

Maci left home and rode her bicycle at a fast speed to a park, where she stopped and talked to a friend for a few minutes. Then she rode home at a slower speed. Which graph best shows how Maci's distance from home changed over time?

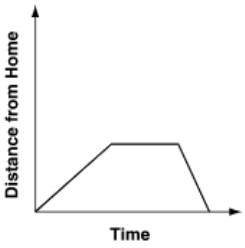
a.



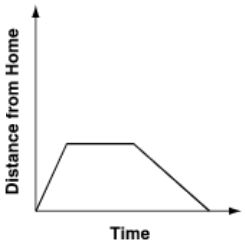
b.



c.



d.



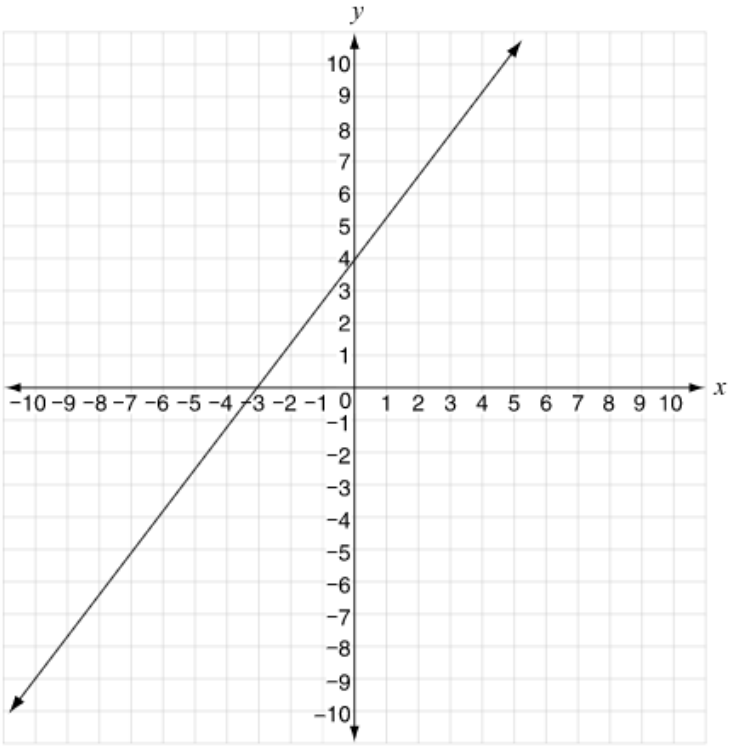
Question 8:

A truck driver is traveling home at an average speed of 50 miles per hour from a distance of 300 miles away.

Write an equation to show the relationship between t, the number of hours the truck driver travels, and d, his distance from home.

Question 9:

The coordinate plane below shows the graph of a linear function. The line passes through the points (–3, 0) and (0, 4).



Another linear function has the equation $y = ax$, where a is a rational number. The two functions have the same rate of change. What is the value of a?

$a =$ ____

Question 10:

Two functions are used to solve a problem.

- Function A is represented by $y = 3x + 10$.
- Function B is represented by this table of values.

x	y
0	4
1	13
2	22
3	31

Which statement explains which function has the greatest rate of change?

a. Function A has the greatest rate of change because $10 > 4$.

b. Function B has the greatest rate of change because $4 > 3$.

c. Function A has the greatest rate of change because $10 > 13 - 4$.

d. Function B has the greatest rate of change because $13 - 4 > 3$.

Question 11:

Which function has the greatest rate of change?

a. $y = 6x + 13$

b. $y = 10x + 1$

c. $y = 12 + 3x$

d. $y = 11 + 9x$

Question 12:

Which sets could not be the domain and range of a function?

a. $\{-4, -3, -2, -1, 1, 2, 3, 4\}$ is the domain and $\{1, 2, 3, 4\}$ is the range

b. $\{1, 2, 3, 4\}$ is the domain and $\{-4, -3, -2, -1, 1, 2, 3, 4\}$ is the range

c. $\{1, 2, 3, 4\}$ is the domain and $\{6, 7, 8, 9\}$ is the range

d. $\{6, 7, 8, 9\}$ is the domain and $\{1, 2, 3, 4\}$ is the range

Question 13:

A function contains the ordered pairs (0, 3), (6, 1), and (9, 0). Which statement explains whether or not the function is linear?

a. The function is linear because it has both x- and y-intercepts.

b. The function is linear because it has a constant rate of change.

c. The function is not linear because the difference in the x-coordinates is not constant.

d. The function is not linear because the y-coordinate is not a constant multiple of the x-coordinate.

Question 14:

Becky writes the equation $y = 2x + 1$.

Matt makes this table of values.

x	y
0	2
1	4
2	8
3	32

Which statement is true about the functions?

a. They represent the same function.

b. One is linear; one is nonlinear.

c. Both functions are linear.

d. Both functions are nonlinear.

Question 15:

A linear function has a slope of 2 and a y-intercept of 3. What is the y-value of the function when $x = 8$?

$y =$