

Assessment #10: Functions Assessment

1. The number of mosquitoes in a small pool of stagnant water increases according to the pattern be

7, 10, 13, 16,...

Which expression represents any term in the pattern when n is the number of the term?

☐ $3 + 4n$

☒ $4 + n^3$

☐ $4 + n$

☐ $4 + 3n$

-
2. Which equation could BEST be used to determine the value of $f(3)$ for the function $f(x) = 2x + 4$?

☐ $f(3) = 23 + 4$

☐ $f(3) = 3(2x + 4)$

☒ $f(3) = 2(3) + 4$

☐ $f(3) = 3(2x) + 4$

-
3. A geometric sequence has these properties:

$$a_1 = 2$$

$$a_n = 5a_{n-1}$$

What is the third term of the sequence?

☐ 35

☐ 50

☐ 25

☒ 20

4. Which of the following relations does NOT represent a function of x ?

☐

x	y
1	3
5	3
5	4
7	4

☐

x	y
0	1
1	2
2	1
3	2

☐

x	y
1	5
2	5
3	5
4	5

☒

x	y
2	8
4	6
6	4
8	2

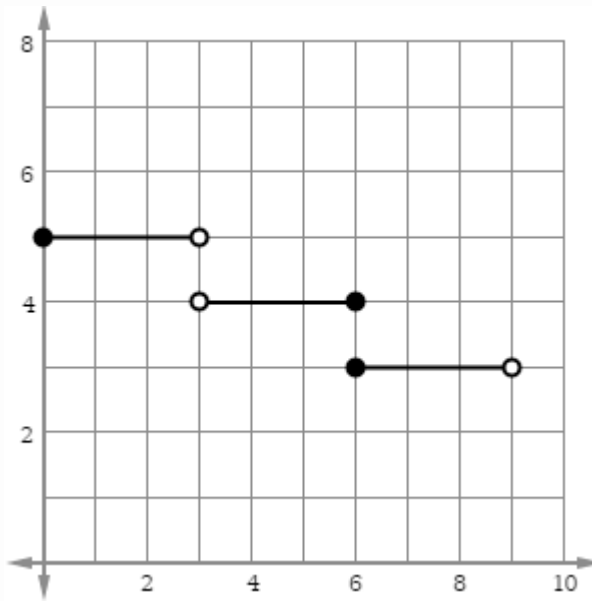
5. Martin plots the points listed below onto a coordinate plane.

(0, 4) (1, 4) (2, 5) (3, 6) (4, 7) (5, 5)

Which statement **best** explains whether Martin's points represent a function?

- ☐ Martin's points represent a function because any vertical line drawn on the coordinate plane will intersect at most one point.
- ☐ Martin's points represent a function because any horizontal line drawn on the coordinate plane will intersect at most one point.
- ☐ Martin's points do **not** represent a function, because a horizontal line can be drawn on the coordinate plane that intersects two points.
- ☐ Martin's points do **not** represent a function, because a vertical line can be drawn on the coordinate plane that intersects two points.
-

6. Write 3 - 4 sentences describing whether or not the graph below is a function or not a function.



In your explanation, be sure to use **EIGHT** of the words from the list below. Please highlight or bold the words you choose 1 explanation.

- function
- relation
- vertical line test
- x value
- y value
- correspond or corresponds
- open circle
- closed circle
- Domain
- Range

This image shows a blank sheet of white paper with horizontal dashed lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the paper.

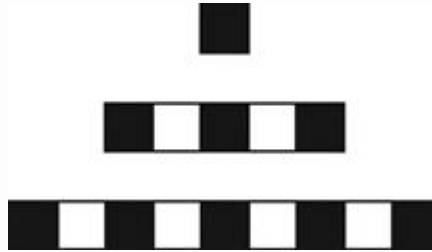
7. In which set of ordered pairs, (x, y) , is y NOT a function of x ?

- ☐ $\{(6, 2), (1, 2)\}$
- ☐ $\{(6, 2), (2, 6)\}$
- ☐ $\{(1, 6), (6, 1), (6, 2)\}$
- ☐ $\{(1, 1), (6, 6), (2, 2)\}$

8. A relation contains the ordered pairs $(3, 8)$, $(6, 10)$, $(9, 12)$, and (a, b) . For which values of a and b is function?

- ☐ $a = 11$ and $b = 8$
- ☐ $a = 3$ and $b = 14$
- ☐ $a = 6$ and $b = 12$
- ☐ $a = 9$ and $b = 9$

9. The pattern shown is created by adding one black and one white square to the left and to the right of the previous design.



The first design has one square, the second has five squares, and the third has nine squares. If this pattern continues, how many squares will there be in the 11th design?

- ☐ 20 squares
 - ☐ 41 squares
 - ☐ 21 squares
 - ☐ 44 squares
-

[illegible]

11. The weight, in pounds, of a baby in the first six months of life can be modeled by the function $f(x)$ where x is the age of the baby in months. According to this model, what is the weight, in pounds, of a baby?

☐ 14.5

☐ 8.5

☐ 13.5

☐ 12.0

12. Which of the following relations is a function?

☐

x	y
1	3
1	4
3	5
5	6

☐

x	y
3	1
6	2
8	3
8	4

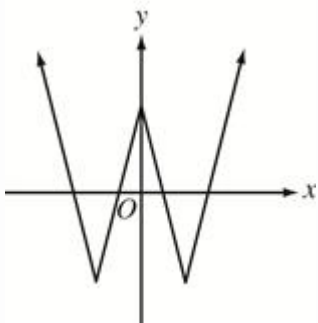
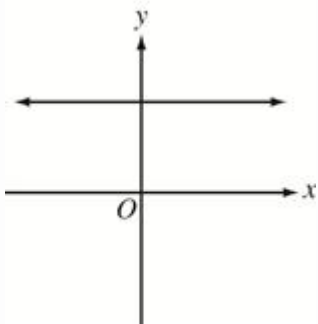
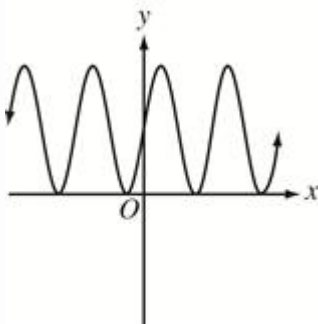
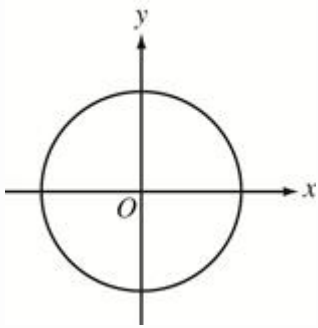
☐

x	y
2	3
2	5
2	6
2	8

☐

x	y
0	1
2	4
4	4
6	1

13. Which of the following is NOT the graph of a function of x ?



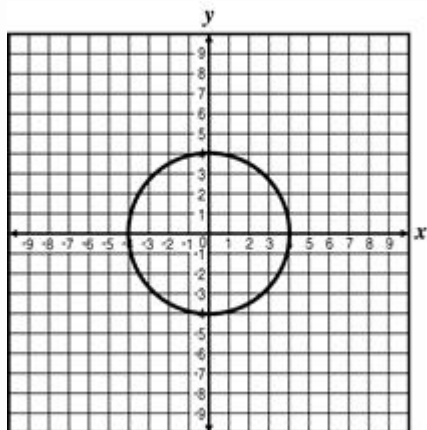
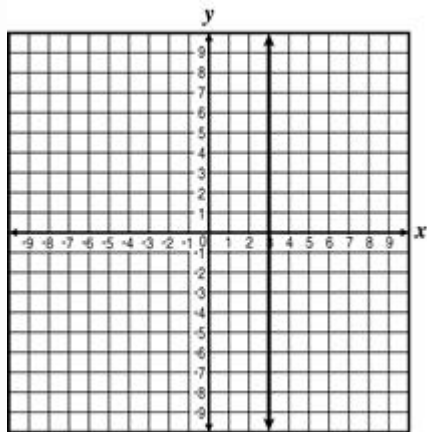
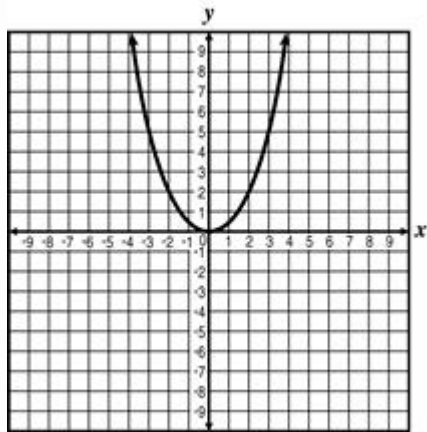
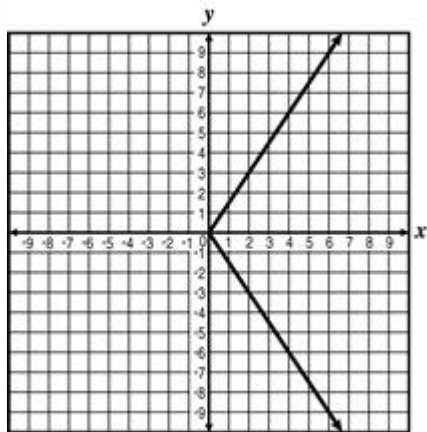
14. The distance a car travels at a rate of 65 mph is a function of the time, t , the car travels. Express f and evaluate it for $f(3.5)$.

- ☐ $f(t) = 65t$; 227.5 miles
 - ☐ $f(t) = 65 / t$; 18.57 miles
 - ☐ $f(t) = t / 65$; 0.05 miles
 - ☐ $f(t) = 65t$; 2275 miles
-

15. Which relation is not a function?

- ☐ $\{(3, 5), (2, 5), (1, 5), (0, 5), (-1, 5)\}$
 - ☐ $\{(1, 4), (2, 2), (3, 5), (4, 3), (5, 1)\}$
 - ☐ $\{(3, -1), (5, 0), (1, 2), (4, 4), (2, 2)\}$
 - ☐ $\{(1, 4), (2, 5), (3, 6), (2, 2), (1, 1)\}$
-

16. Which graph represents a function?



17. A cable company charges \$150 per month plus \$4 for each movie watched. If Tracie's budget for \$175, what values represent this function's domain?

- ☐ $D = \{0, 4, 8, 12, 16, 20, 24\}$
 - ☐ $D = \{...4, 5, 6\}$
 - ☐ $D = \{0, 1, 2, 3, 4, 5, 6\}$
 - ☐ $D = \{150, 154, 158, 162, 166, 170, 174\}$
-

18. Which ordered pair (x, y) makes this relation a function?

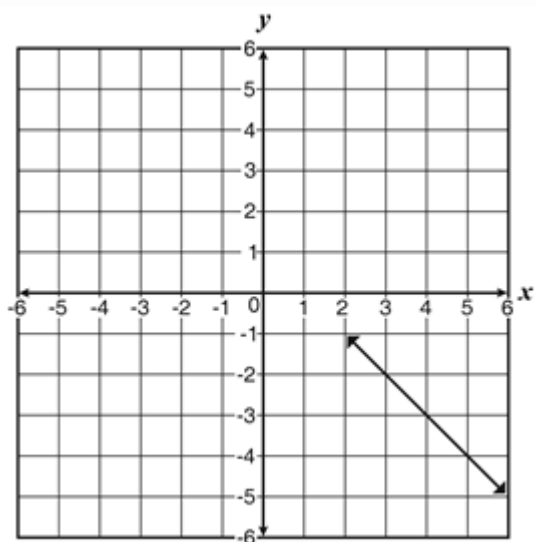
$\{(2, 3), (-2, 5), (4, 4), (-4, 5), (x, y)\}$

- ☐ $(-4, -1)$
 - ☐ $(2, -1)$
 - ☐ $(-2, -1)$
 - ☐ $(-1, -1)$
-

19. Which set of ordered pairs has a range of $\{0, 1, 4\}$?

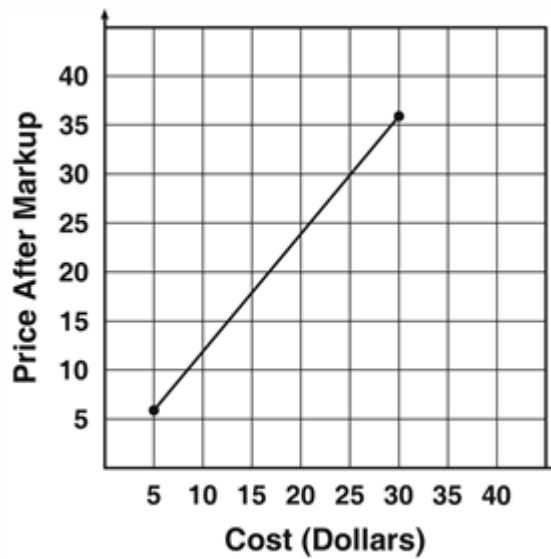
- ☐ $(0, 0), (0, 1), (0, 2), (0, 4)$
 - ☐ $(0, 0), (0, 1), (4, 1)$
 - ☐ $(0, 2), (1, 2), (4, 2)$
 - ☐ $(-1, 0), (0, 1), (2, 1), (3, 4)$
-

20. What is the domain of the function shown in the graph?



- ☐ all real numbers less than 0
 - ☐ all real numbers between and including 2 and 6
 - ☐ all real numbers greater than 0
 - ☐ all real numbers
-

21. The graph below models the price of items after 120% markup at a small shop.



Based only on the given graph, what is the function's domain?

- ☐ numbers between and including 5 and 30
- ☐ numbers between and including 6 and 36
- ☐ numbers between and including 0 and 36
- ☐ numbers between and including 0 and 30

22. A geometric sequence is defined by:

$$a_1 = 10$$
$$a_n = 2a_{n-1}$$

What are the first four terms of the sequence?

- ☐ 10, 12, 24, 48
 - ☐ 10, 12, 14, 16
 - ☐ 10, 20, 30, 40
 - ☐ 10, 20, 40, 80
-

23. Which set of ordered pairs does NOT represent a function?

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

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

☐ $\{(0, 0), (1, 1), (2, 2), (3, 3)\}$

☐ $\{(0, 0), (0, 1), (1, 2), (1, 3)\}$