TEST NAME: **Copy of Copy of Unit 3 Assessment Math I Williams Montessori Q3 (MS) (COPY) (COPY)**

TEST ID: **3015308**

GRADE: **08 - Eighth Grade - 09 - Ninth Grade**

SUBJECT: **Mathematics**

TEST CATEGORY: **Shared Classroom Assessments**

04/02/19, Copy of Copy of Unit 3 Assessment Math I Williams Montessori Q3 (MS) (COPY) (COPY)

Student: _____

Class: _____

Date: _____

1. The function f(x) = –0.25x + 5 models the height of a candle x seconds after it is lit. What is the meaning of the y-intercept of the function?

   A. the initial height of the candle

   B. the final height of the candle

   C. the rate at which the candle is burning

   D. the amount of time it will take the candle to burn

2. Which choice could be modeled by a linear function?

   A. the amount of money, y, in an account after x years earning 4% interest compounded annually

   B. the monthly cost, y, to use a cell phone for x minutes at a rate of 4 cents per minute

   C. the height, y, of a ball after bouncing x times, if each bounce reaches 2/3 the previous height

   D. the amount, y, of radioactive material remaining after x years when decay occurs at a rate of 30% each year

3. Sam is flying his model airplane when he begins doing a downward corkscrew trick with the plane.

   He determines that the equation y = –3.5x + 140 can be used to estimate the plane's height (in feet) after *x* seconds of doing the trick. Which statement is true based on Sam's equation?

   A. The starting height of the model airplane is approximately 3.5 feet.

   B. The height of the model airplane decreases by 140 feet each second during the trick.

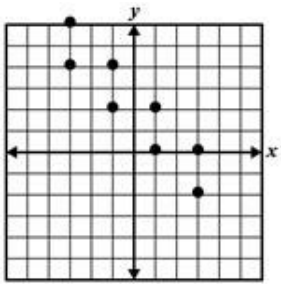
   C. The height of the model airplane does not change during the trick.

   D. The height of the model airplane decreases by 3.5 feet each second during the trick.

4. **Select all of the graphs that represent functions.**

Pick up to 3 answers.

A.



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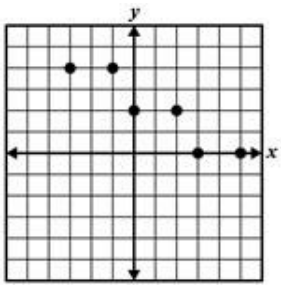

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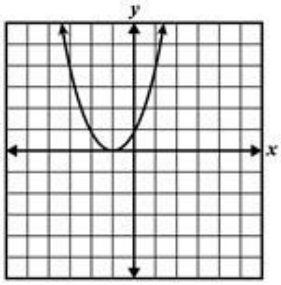

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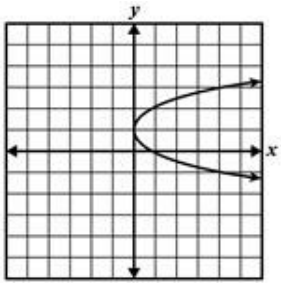

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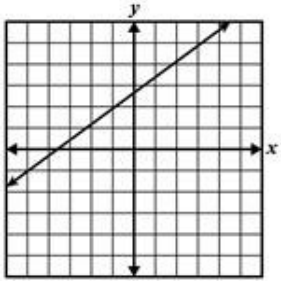


5. **Which ordered pair (x, y) makes the relation a function?**

$$\{(3, 4), (-2, 6), (5, 5), (-4, 6), (x, y)\}$$

A. $(-4, 4)$

B. $(-2, 5)$

C. $(0, 6)$

D. $(3, 6)$

6. **Which relation below is a function?**

A.

x	*y*
0	–3
1	–4
0	–5
2	–6

B.

x	*y*
0	3
1	4
0	5
2	6

C.

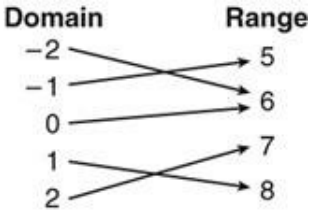
x	*y*
0	0
1	1
0	8
2	27

D.

x	*y*
0	0
1	5
2	–5
4	7

7. **Which relation below is NOT a function?**

A.



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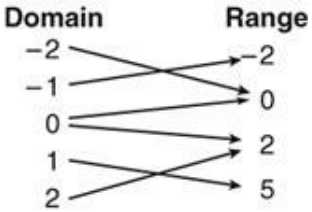

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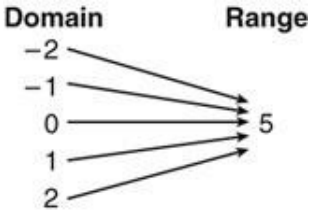

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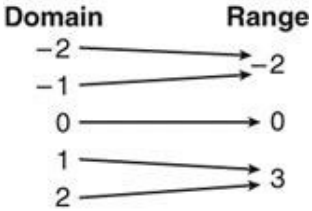
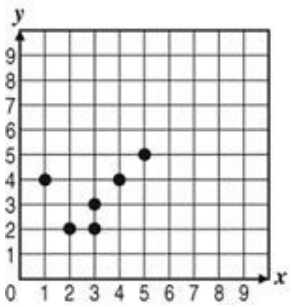


8. **The graph below displays a relation between *x* and *y*.**



This relation does NOT define *y* as a function of *x* because

A. the relation is not linear.

B. points (2, 2) and (3, 2) have the same *y*-value.

C. points (3, 2) and (3, 3) have the same *x*-value.

D. several points have equal *x*- and *y*-values.

9. Jaymee is making bracelets to sell at her school's craft fair. She makes an initial purchase of $50 of yarn and sells the bracelet for $2 a piece. This situation is best modeled by what type of equation?

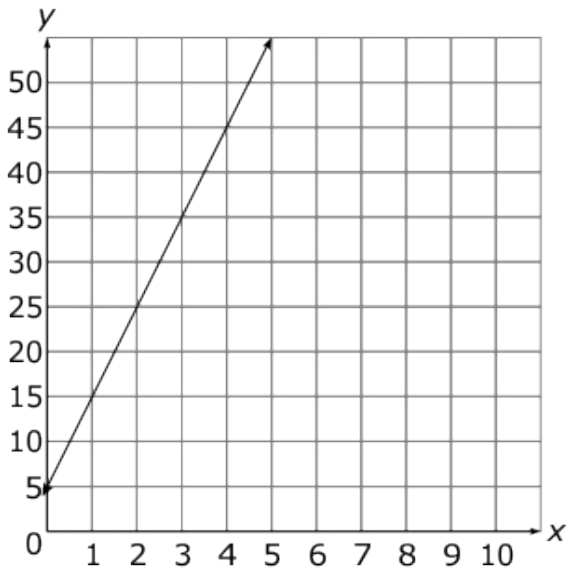
A. cubic function

B. exponential function

C. linear function

D. quadratic function

10. Which choice is a correct equation for the graph shown below?



A. $y = 2x + 20$

B. $y = 3x + 1$

C. $y = 10x + 5$

D. $y = 15x + 35$

11. **Bacteria grow in colonies over time. Which table shows growth of bacteria colonies that can be modeled by a linear graph?**

A.

Time (in hours)	1	2	3	4
Number of Colonies	1	4	9	16

B.

Time (in hours)	1	2	3	4
Number of Colonies	5	10	15	20

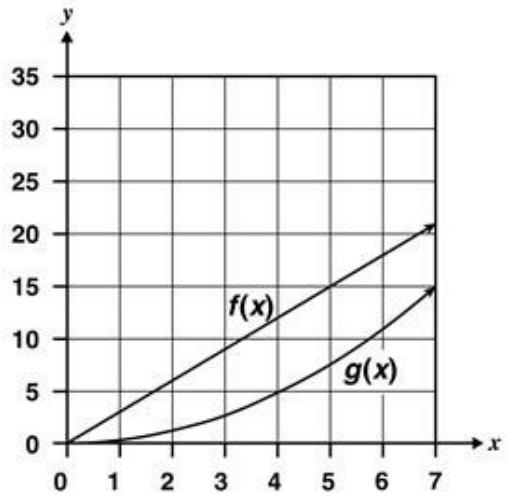
C.

Time (in hours)	1	2	3	4
Number of Colonies	1	16	81	256

D.

Time (in hours)	1	2	3	4
Number of Colonies	5	25	125	625

12. **In the graph below, $f(x)$ is a linear function, and $g(x)$ is an exponential function.**



Which statement BEST explains the behavior of the graphs of the functions as x increases?

A. $g(x)$ eventually exceeds $f(x)$ because the rate of change of $f(x)$ increases as x increases, whereas the rate of change of $g(x)$ is constant.

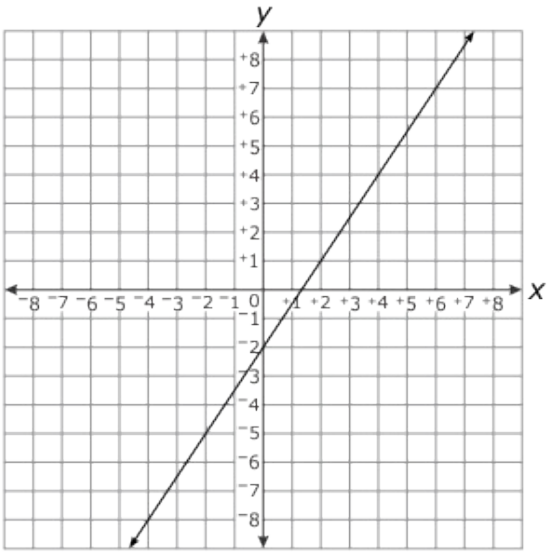
B. $g(x)$ eventually exceeds $f(x)$ because the rate of change of $g(x)$ increases as x increases, whereas the rate of change of $f(x)$ is constant.

C. $f(x)$ eventually exceeds $g(x)$ because the rate of change of $g(x)$ decreases as x increases, whereas the rate of change of $f(x)$ is constant.

D. $f(x)$ eventually exceeds $g(x)$ because the rate of change of $f(x)$ decreases as x increases, whereas the rate of change of $g(x)$ is constant.

13. Which is the graph of $3x - 2y = 4$?

A.



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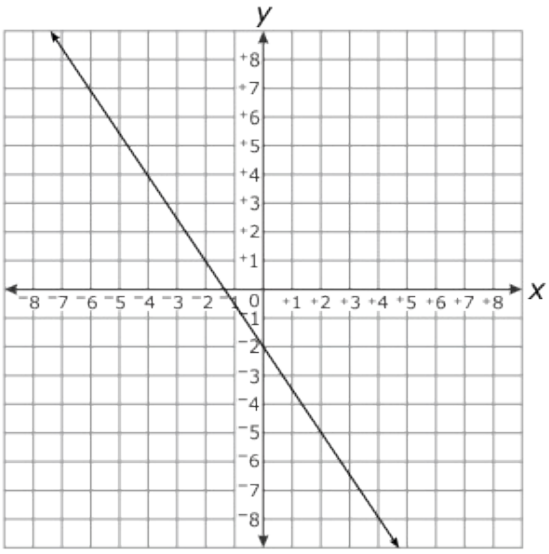
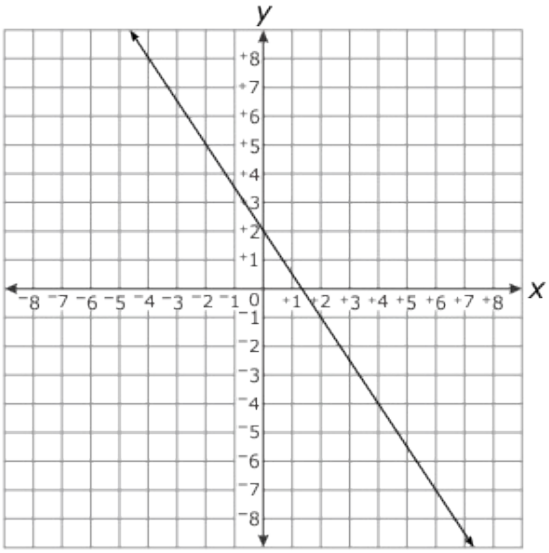
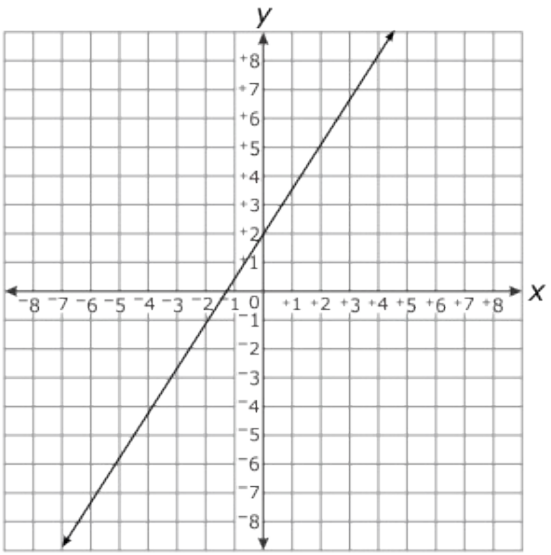


C.



D.



14. Two functions are represented below.

Function 1

$$y = \frac{1}{2}x + 3$$

Function 2

x	*y*
2	5
4	10
6	15

What is the difference between the slopes of the two functions?

A. $\frac{1}{2}$

B. 2

C. $2\frac{1}{2}$

D. 5

15. **The line in the graph below shows the relationship between the distance of a taxi ride, x, and the cost for that ride, y.**

Based on the graph, which equation can be used to determine the cost, in dollars, for a taxi ride of x kilometers?

A. $y = \frac{2x}{3} + 2$

B. $y = \frac{2x}{3} + 4$

C. $y = \frac{3x}{2} + 2$

D. $y = \frac{3x}{2} + 4$

16. **Hannah noticed that the number of dog barks that are heard in her video game is dependent on the number of cars that drive down a neighborhood street in the game.**

Number of Dog Barks in Terms of Number of Cars

Number of Cars	Number of Dog Barks
5	15
10	25
15	35
20	45
25	55
30	65
35	75

Which equation BEST represents the number of dog barks (*b*) in terms of the number of cars that drive down the street (*c*) during the game?

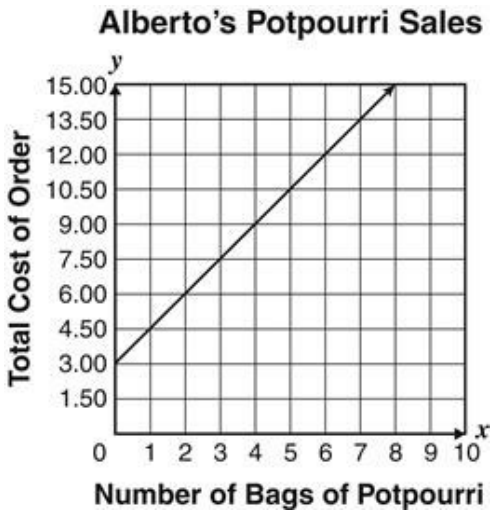
A. $b = 2c + 2$

B. $b = 2c + 5$

C. $c = 5b + 2$

D. $c = 2b + 5$

17. **Which situation could the graph below BEST represent?**



A. Alberto sold bags of potpourri for $1.50 per bag, plus a $3.00 handling charge per order.

B. Alberto sold bags of potpourri for $3.00 per bag, plus a $1.50 handling charge per order.

C. Alberto sold bags of potpourri for $1.50 per bag, plus a $1.50 handling charge per order.

D. Alberto sold bags of potpourri for $3.00 per bag, plus a $3.00 handling charge per order.

18. **Which table corresponds to the equation $y = -3x - 2$?**

A.

x	*y*
–2	4
–1	1
0	–2
1	–5
2	–8

B.

x	*y*
–2	–8
–1	–5
0	–2
1	1
2	4

C.

x	*y*
–2	8
–1	5
0	2
1	–1
2	–4

D.

x	*y*
–2	4
–1	1
0	–2
1	1
2	4

19. Two functions are shown below:

$f(x) = 3x + 7$
$g(x) = 2x + 12$

What is the value of x where the graphs of f(x) and g(x) intersect?

A. -22

B. -5

C. 5

D. 22

20. What is the distance between the y-intercept of the function $f(x) = 2x^2 - 6x + 3$ and the y-intercept of the linear function g represented by the table below?

x	y
-5	15
-2	3
2	-13
5	-25

A. 2 units

B. 3 units

C. 8 units

D. 9 units

21. The table below shows the hours, x, spent working on a new road and the distance, y, of finished road.

Time (Hours)	Distance (Miles)
50	1.5
200	6
350	10.5
400	12
650	19.5

Which ratio is proportional to the data points in this table?

A. $\frac{3}{400}$

B. $\frac{3}{100}$

C. $\frac{3}{25}$

D. 3

22. What is the slope of this pair of points?

(2, -4) (6, -3)

A. $\frac{1}{4}$

B. $\frac{-1}{4}$

C. 4

D. $\frac{-7}{4}$

23. **The formula $A = lw$ is used to calculate the area A of a rectangular surface using the length (l) and the width (w) of the surface. Which formula could be used to find w in terms of A and l?**

A. $w = \frac{l}{A}$

B. $w = \frac{A}{l}$

C. $w = Al$

D. $a = Al$

24. What is the value of x in the equation $3(x + 4) = 2(x + 9)$?

A. 1

B. 5

C. 6

D. 30

25. Every ten years, the Census counts how many people are living in every town in the United States.

• The 2010 Census showed that 1,000 people were living in Appleville, and 4,000 people were living in Bridgetown.

• The population of Appleville is predicted to double every ten years.

• The population of Bridgetown is predicted to increase by 1,000 every ten years.

If the predictions come true, what will be the first census year that will show Appleville with a larger population than Bridgetown?