MATH 1 MIDTERM REVIEW

1.When given the equation $k = \frac{mv^2}{2}$, solve for *v*.

2. What is the distance between the points (−6, 2) and (6, 1)?

3. The length of a room is 5 feet less than triple its width. The perimeter of the room is 54 feet. What is the length of the room?

4. What equation is parallel to the line y = $-\frac{1}{3}x + 11$ and passes through the point (3, 4)?

5. Two functions are shown below.

$f(x) = -3x + 6$

$g(x) = 2x - 9$

What is the value of *x* when $f(x) = g(x)$?

6. What is the solution to 3 – (x + 1) = 5x + 6 – 7x ?

7. What is the solution to the inequality? $\frac{-5x + 3}{4} > -8$

8. For the function f(x) = 4x – 2, what is the range of f(x) for the domain {−2, 0, 3}?

9. The function below describes an arithmetic sequence, where $A(n)$ is the nth term and n is the term number.

$$A(n) = 6 + 0\ .5(n - 1)$$

Which table ***best*** fits the sequence?

A.

n	1	3	5	7
A(n)	6	7	8	9

B.

n	1	1.5	2	2.5
A(n)	6	7.5	9	10.5

C.

n	2	3	4	5
A(n)	6	9	12	15

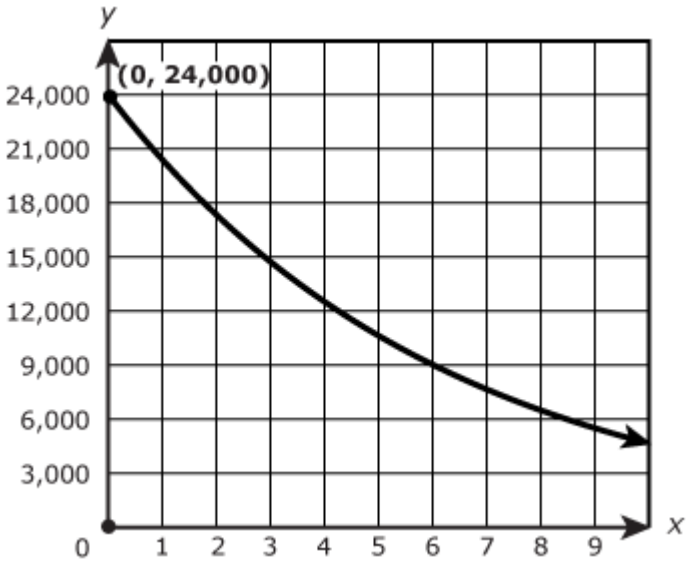
D.

n	0	1	2	3
A(n)	6	6.5	7	7.5

10. The sequence below shows the number of cells in a sample at the end of the four hours: 128, 64, 32, 16 Write a recursive formula to model the sequence.

11. Roberto and Maya are playing a game. Roberto's game piece lands at the point (−13, 14). The next turn, Maya's game piece lands at the point (−3, −10). What are the coordinates of the point midway between the two game pieces?

12. The graph of $h(x)$ represents the predicted value of a car over *x* years.

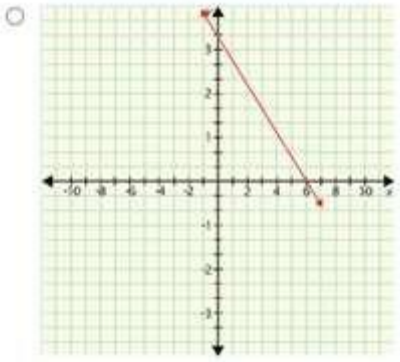


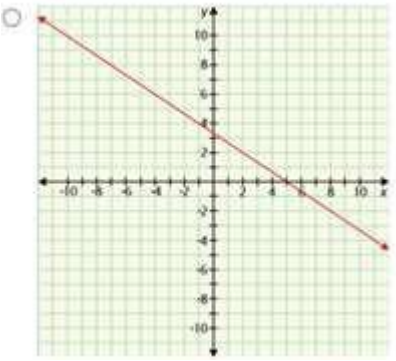
What is the range of $h(x)$?

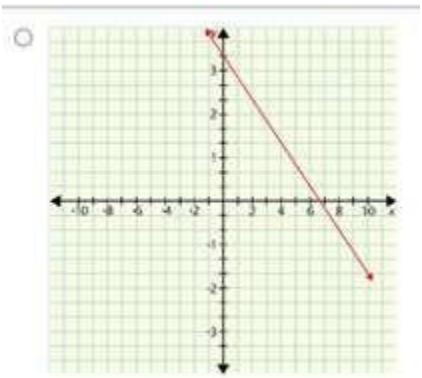
13. A company charges $13 plus $3 per hour to rent a boat. Abigail and Monique want to rent a boat but do not want to spend more than $20 each. What is the maximum number of hours the girls can rent the boat?

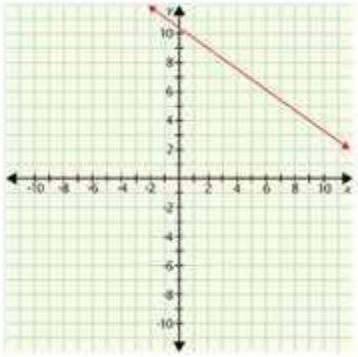
14. The graph of a linear function passes through the points (2, 3) and (5, 9). Write an equation of the function.

15. A store charges $2 for each pen and $3 for each marker. Rachel spends $ 10 on pens and markers. She buys x pens and y markers. Which graph represents this situation?

A. 

B. 

C. 

D. 

16. Mackenzie has 19 coins in her pocket. They are all either dimes or quarters, totaling $3.40. How many coins are quarters?

17. A sequence of numbers is shown.

8, 19, 30, 41, 52,….
Write a formula for the sequence shown above.

18. Describe the line $y = \frac{1}{2}x + 8$. Explain what direction you would find the slope and what axis the line would cross.

19. The formula for calculating the volume of a cone is $V = \frac{1}{3}\pi r^2 h$. Solve this formula for *h*.

20. The table below shows the amount of tips a waiter earned on four consecutive days.

Day	Amount of Tips
1	$101.33
2	$98.66
3	$104.00
4	$107.33

What was the average rate of change in the amount of tips earned from day 2 to day 4?

21. Point M is the midpoint of line segment AB. If the coordinates of M are (2, 8) and the coordinates of A are (10, 12), what are the coordinates of B?

22. Which is an equation of a line perpendicular to the graph of $6x + y = 12$?

23. Which is an equation of a line parallel to the line that passes through the points (8, 0) and (13, 2)?

24. Triangle ABC has the points A (−4, 8), B (−1, 2) and C (7, 6). Find the perimeter of the triangle.

25. Write an equation of a line parallel to the line whose equation is $2x - 3y = 9$?

26. Graph the inequality $-x - 2y > 8$. Explain how you arrived at the answer.