MCAS OLYMPICS

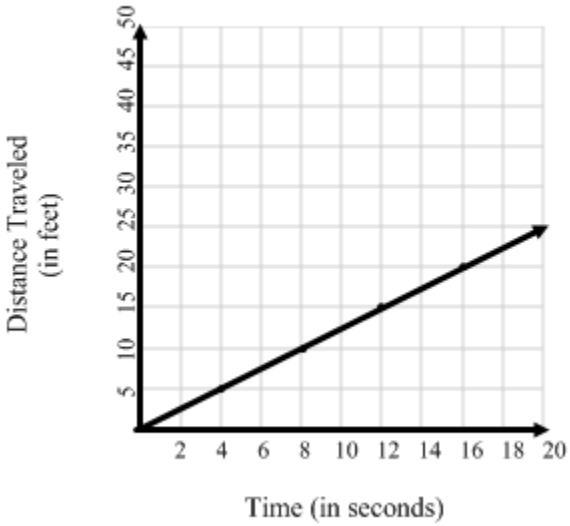
Event: LINEAR LACROSSE .

1. What is the slope of the line represented by the equation below?

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

a. $\frac{1}{3}$ b. $\frac{1}{2}$ c. 2 d. 3

2. The graph below shows the distance that a package travels on a conveyor belt in different numbers of seconds.



Based on the data in the graph, which of the following best represents the number of feet per second that a packet travels on a conveyor belt?

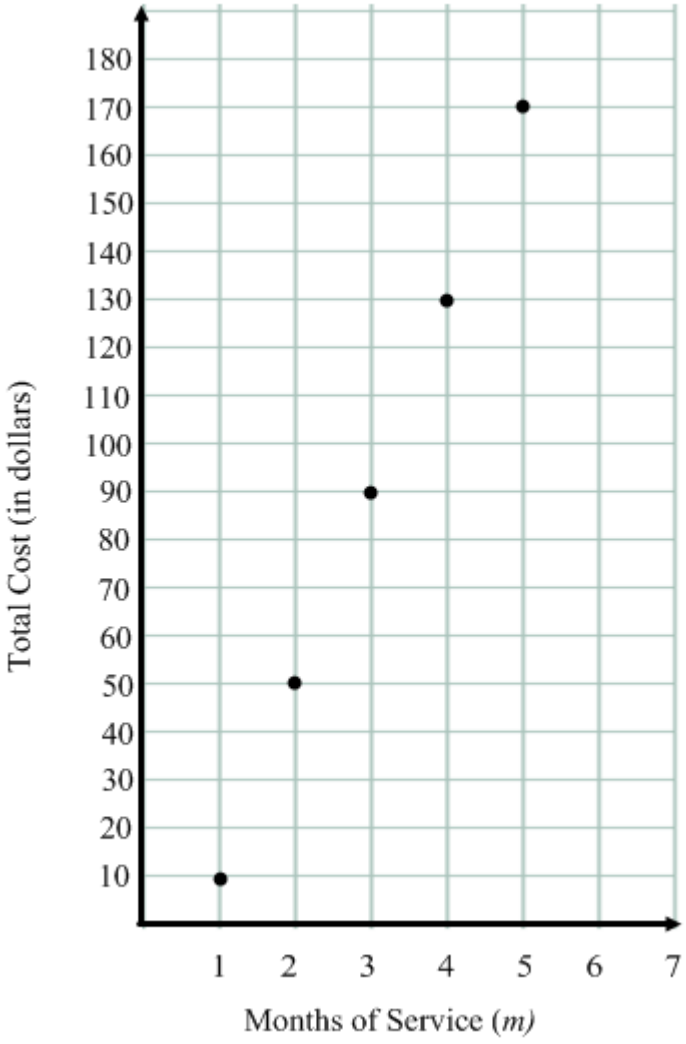
a. 5 feet per second

b. $2\frac{1}{2}$ feet per second

c. $1\frac{1}{4}$ feet per second

d. $\frac{4}{5}$ feet per second

3. The graph below shows the total cost of cable service to new customers for the first five months.

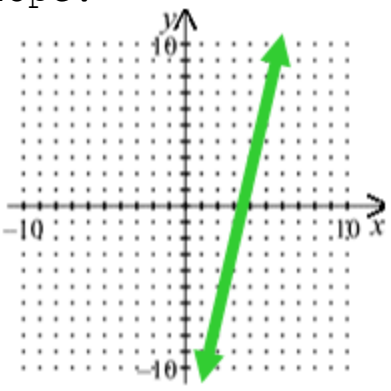


Based on the data in the graph, which of the following expressions can be used to represent the total cost of cable service for m months?

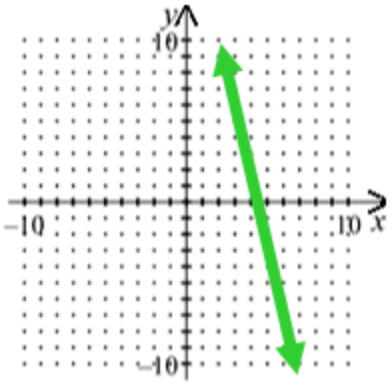
a. $10m + 30$ b. $10m + 40$ c. $40m - 10$ d. $40m - 30$

4. Which of the lines graphed below has the greatest positive slope?

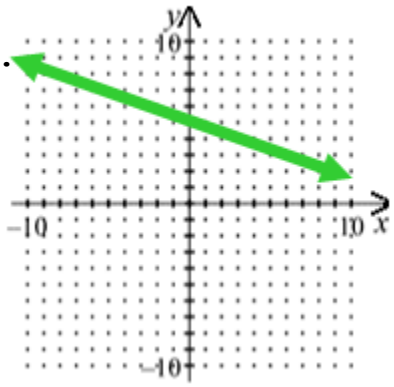
a.



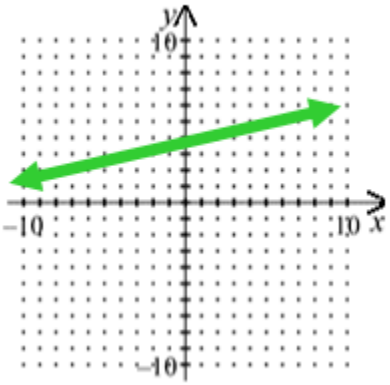
b.



c.

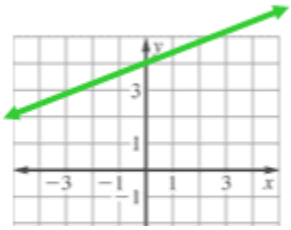


d.

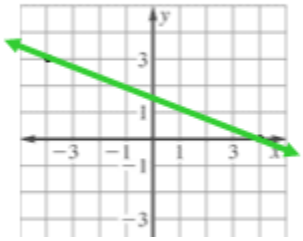


5. Which of the following lines appears to have a y – intercept of 4 and a slope of $\frac{1}{3}$

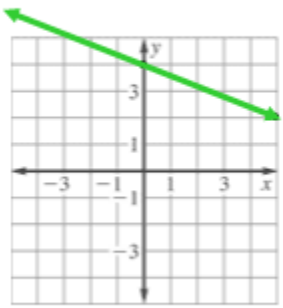
a.



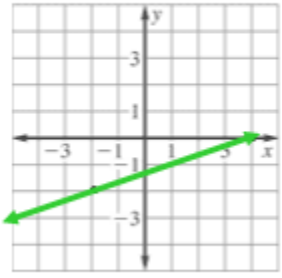
b.



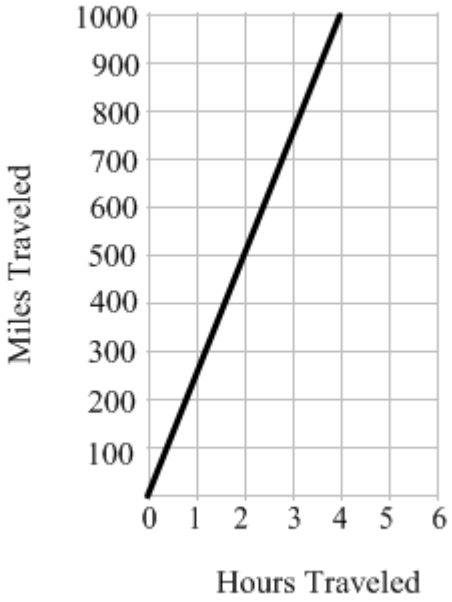
c.



d.



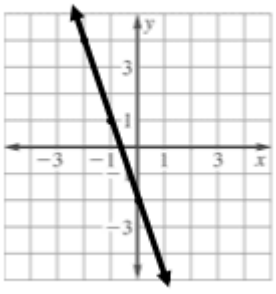
6. The graph below shows the distance an airplane traveled over time.



Which of the following is closest to the average speed of the airplane?

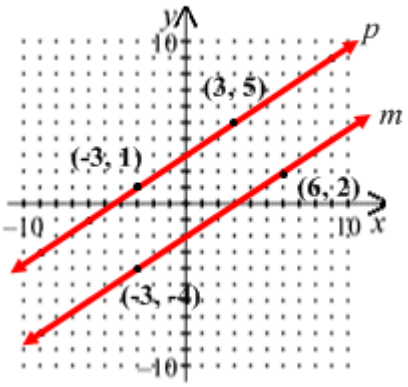
a. 100 mph b. 250 mph c. 500 mph d. 1000 mph

7. Which of the following equations best represents the line in the graph shown below?



a. $y=-2x+3$ b. $y=-3x+2$ c. $y=-2x-3$ d. $y=-3x-2$

8. The coordinate grid below shows the graphs of two lines: line *p* and line *m*.



Which of the following is a true statement about the relationship between line *p* and line *m*?

a. The slope of line *p* is greater than the slope of line *m*.
b. The *x*-intercept of line *m* greater than the *x*-intercept of line *p*.
c. The *y*-intercept of line *m* is greater than the *y*-intercept of line *p*.
d. The slope of line *m* is greater than the slope of line *p*.

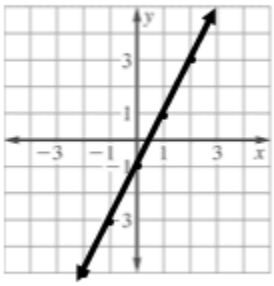
9. The formula $C = \frac{5}{9}(F - 32)$ is used to convert a temperature, *F*, written in Fahrenheit to its corresponding temperature, *C*, written in Celsius. Suppose the outside temperature increased by 18 degrees Fahrenheit. How will the Celsius temperature change?

a. increase by 10 degrees
b. decrease by 10 degrees
c. increase by 14 degrees
c. decrease by 14 degrees

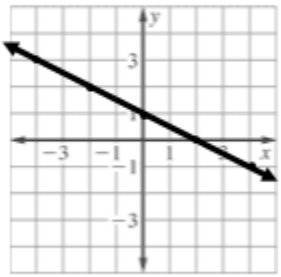
10. Which of the following graphs best represents the equation below?

$$y = -2x + 1$$

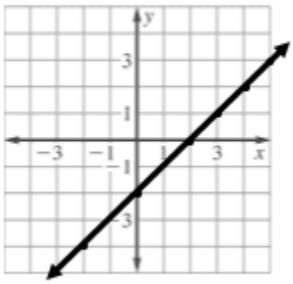
a.



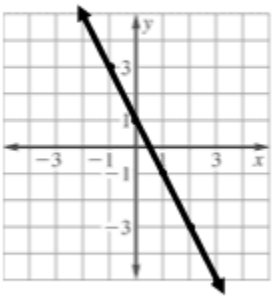
b.



c.



d.



11. Marisa drank one cup of milk and ate x small vanilla cookies for a snack. The linear equation below represents y, the total number of calories in Marisa's snack.

$$y = 12x + 20$$

a. What is the y-intercept of the line represent by this equation?

b. Explain what the y-intercept tells us about Marisa's snack.

c. What is the slope of the line represented by this equation?

d. Explain what the slope tells us about Marisa's snack.

e. If Marisa eats 9 small vanilla cookies, what is the total number of calories in her snack? Show or explain how you got your answer.