

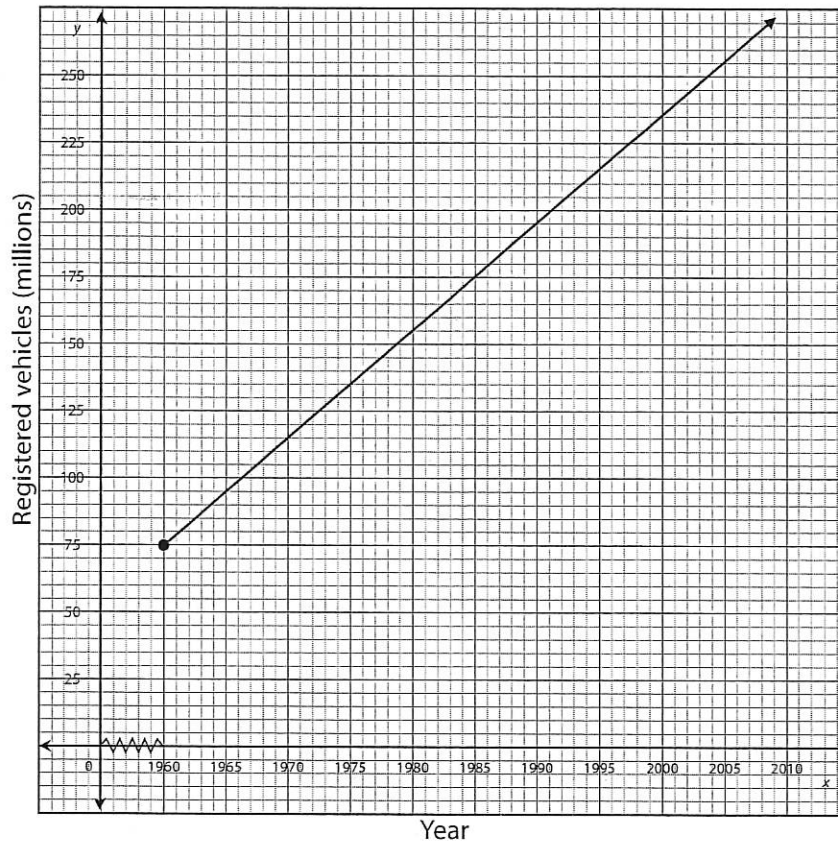
NAME: \_\_\_\_\_

## FUNCTIONS

### CCSS 8.F.2

### Cars and Drivers

The U.S. Department of Transportation records the number of licensed drivers as well as the number of registered vehicles each year. Both sets of data can be modeled by linear functions. The function  $y = 2.8x - 5401$  represents the number of licensed drivers in the United States between the years 1960 and 2010. The graph below represents the number of registered vehicles from 1960 to 2010.



1. Which model has a greater rate of change?
2. According to the models, were there more licensed drivers or more registered vehicles in 1965?
3. If the number of licensed drivers and registered vehicles were to continue to follow these models, would there be more licensed drivers or more registered vehicles in 2020? Explain your answer.

NAME: \_\_\_\_\_

## FUNCTIONS

### CCSS 8.F.3

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#### Slope-Intercept Form

Functions are usually written with  $y$  to the left of the equal sign. This form of an equation is called the slope-intercept form. It is written  $y = mx + b$ , where  $m$  is the slope of the line and  $b$  is the value at which the line crosses (intercepts) the  $y$ -axis. When a line crosses the  $y$ -axis, the  $x$  value is always zero.

Put each equation below into slope-intercept form.

1.  $5x + y = 14$

2.  $2x - y = 32$

3.  $40 = 3x + y$

4.  $7x - y = 9$

5.  $5y = 5x - 25$

6.  $y + 3x = 50$

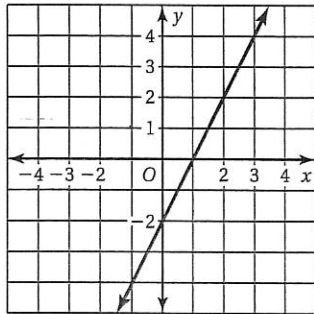
7.  $4y + 2x = 100$

8.  $\frac{1}{3}y - \frac{1}{4}x = 5$

# 4 Standards Assessment

1. Which equation matches the line shown in the graph? (8.EE.6)

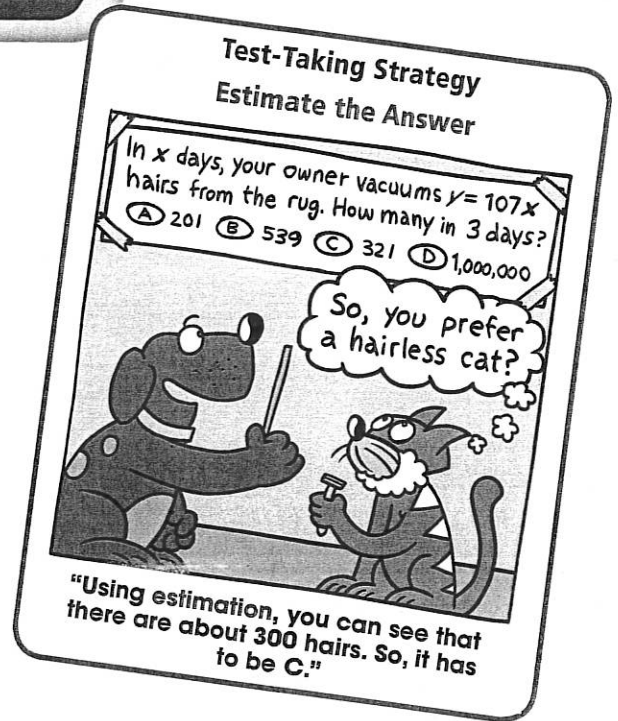
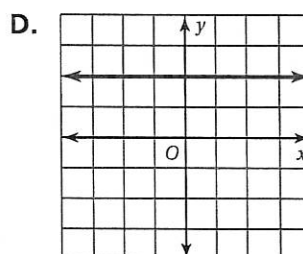
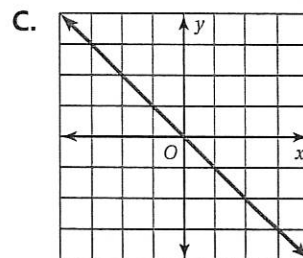
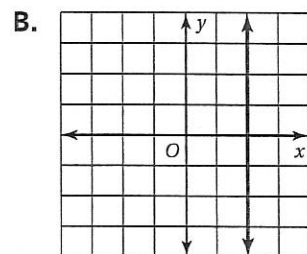
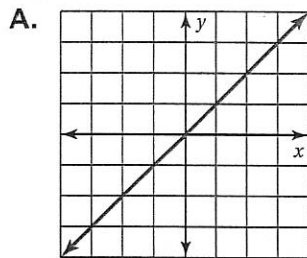
- A.  $y = 2x - 2$
- B.  $y = 2x + 1$
- C.  $y = x - 2$
- D.  $y = x + 1$



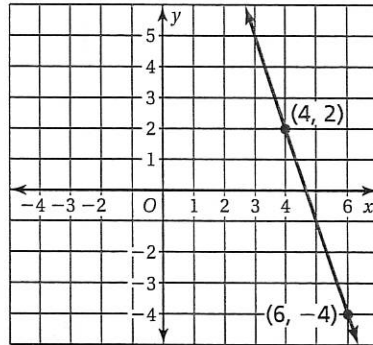
2. The equation  $6x - 5y = 14$  is written in standard form. Which point lies on the graph of this equation? (8.EE.6)

- F.  $(-4, -1)$
- G.  $(-2, 4)$
- H.  $(-1, -4)$
- I.  $(4, -2)$

3. Which line has a slope of 0? (8.EE.6)



4. Which of the following is the equation of a line perpendicular to the line shown in the graph? (8.EE.6)



- F.  $y = 3x - 10$                       H.  $y = -3x + 5$   
 G.  $y = \frac{1}{3}x + 12$                       I.  $y = -\frac{1}{3}x - 18$

5. What is the slope of the line that passes through the points (2, -2) and (8, 1)? (8.EE.6)



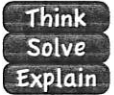
6. A cell phone plan costs \$10 per month plus \$0.10 for each minute used. Last month, you spent \$18.50 using this plan. This can be modeled by the equation below, where  $m$  represents the number of minutes used.

$$0.1m + 10 = 18.5$$

How many minutes did you use last month? (8.EE.7b)

- A. 8.4 min                                      C. 185 min  
 B. 85 min                                      D. 285 min

7. It costs \$40 to rent a car for one day. In addition, the rental agency charges you for each mile driven, as shown in the graph. (8.EE.6)



*Part A* Determine the slope of the line joining the points on the graph.

*Part B* Explain what the slope represents.

