

## Lesson 8 Practice Problems

1. Select **all** the equations that have graphs with the same  $y$ -intercept.

A.  $y = 3x - 8$

B.  $y = 3x - 9$

C.  $y = 3x + 8$

D.  $y = 5x - 8$

E.  $y = 2x - 8$

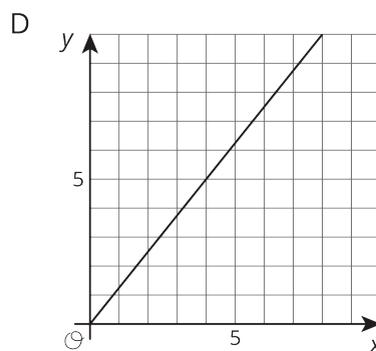
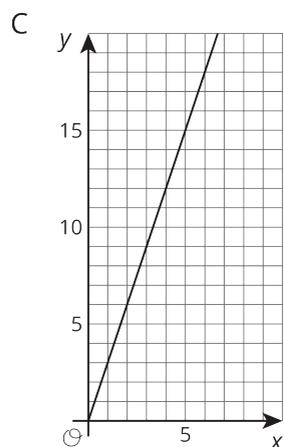
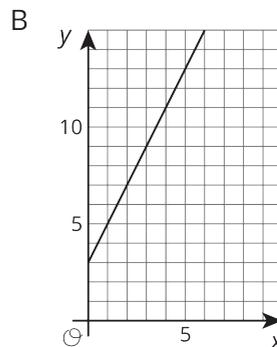
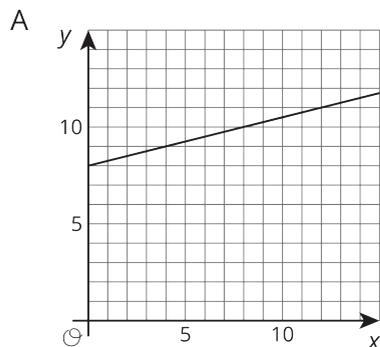
F.  $y = \frac{1}{3}x - 8$

2. Create a graph showing the equations  $y = \frac{1}{4}x$  and  $y = \frac{1}{4}x - 5$ . Explain how the graphs are the same and how they are different.

3. A cable company charges \$70 per month for cable service to existing customers.
- Find a linear equation representing the relationship between  $x$ , the number of months of service, and  $y$ , the total amount paid in dollars by an existing customer.
  - For new customers, there is an additional one-time \$100 service fee. Repeat the previous problem for new customers.
  - When the two equations are graphed in the coordinate plane, how are they related to each other geometrically?
4. A mountain road is 5 miles long and gains elevation at a constant rate. After 2 miles, the elevation is 5500 feet above sea level. After 4 miles, the elevation is 6200 feet above sea level.
- Find the elevation of the road at the point where the road begins.
  - Describe where you would see the point in part (a) on a graph where  $y$  represents the elevation in feet and  $x$  represents the distance along the road in miles.

(From Unit 3, Lesson 6.)

5. Match each graph to a situation.



- A. Graph A
- B. Graph B
- C. Graph C
- D. Graph D

1. The graph represents the perimeter,  $y$ , in units, for an equilateral triangle with side length of  $x$  units. The slope of the line is 3.
2. The amount of money,  $y$ , in a cash box after  $x$  tickets are purchased for carnival games. The slope of the line is  $\frac{1}{4}$ .
3. The number of chapters read,  $y$ , after  $x$  days. The slope of the line is  $\frac{5}{4}$ .
4. The graph shows the cost in dollars,  $y$ , of a muffin delivery and the number of muffins,  $x$ , ordered. The slope of the line is 2.

(From Unit 3, Lesson 6.)