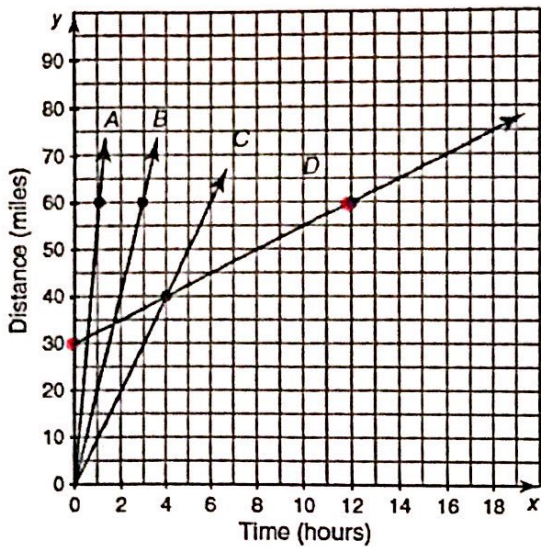


Day 1 - Real World Slopes - Practice

1. The graph shown represents the distance four cars travel over time. Calculate the rate of change (slope) and then the unit rate of change for each car.



Car A:  $\frac{60 \text{ miles}}{1 \text{ hour}} = 60 \text{ mph}$

Car B:  $\frac{60 \text{ miles}}{3 \text{ hours}} = 20 \text{ mph}$

Car C:  $\frac{40 \text{ miles}}{4 \text{ hours}} = 10 \text{ mph}$

Car D:  $\frac{30 \text{ miles}}{12 \text{ hours}} = 2.5 \text{ mph}$

b. Describe how the steepness of the line is related to the rate of change.

*The steeper the graph, the faster the car goes.*

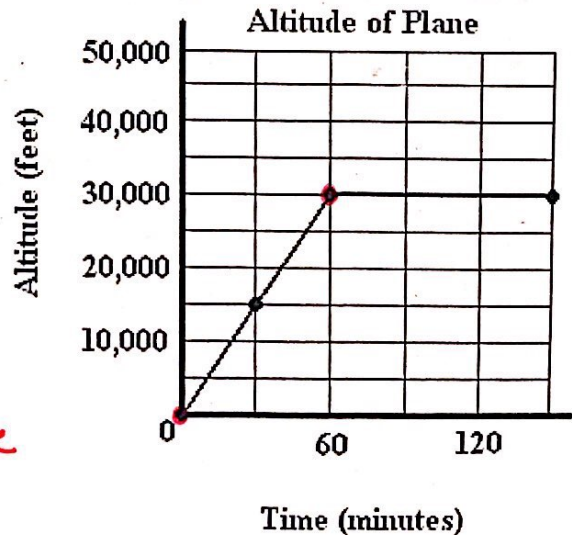
2. The graph shows the altitude of a plane.

a. Find the plane's rate of change during the first hour.

$\frac{30,000 \text{ ft}}{1 \text{ hour}}$

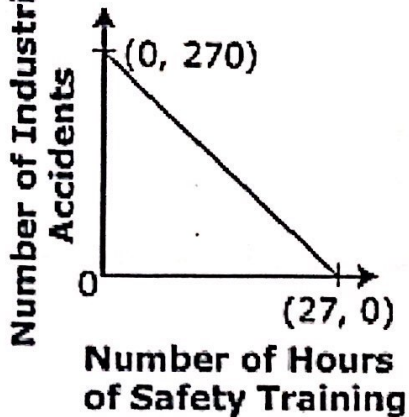
b. Find the plane's rate of change during the second hour.

*0 → flying at a constant rate*



3. An industrial-safety study finds there is a relationship between the number of industrial accidents and the number of hours of safety training for employees. This relationship is shown in the graph below.

### Industrial Safety



- a. Find the rate of change.

$$\frac{-270 \text{ accidents}}{27 \text{ hours}} = \frac{-10 \text{ accidents}}{1 \text{ hour}}$$

- b. Explain what it represents.

There were 10 fewer accidents for every hour of training

4. How many calories do you burn per minute on the exercise bike?

Number of Minutes on an Exercise Bike	Total Number of Calories Burned
15	180
30	360
45	540
60	720

$$\frac{180 \text{ calories}}{15 \text{ min}} = 12 \text{ calories burned every minute}$$

5. What is the cost per photo printed?

Number of Photos Printed	Total Cost of Photos (in Dollars)
10	2
20	4
30	6
40	8

$$\frac{\$2}{10 \text{ photos}} = \$0.20 \text{ for every photo}$$

6. Carmen is selling pies at the cherry festival to raise money for her local volunteer fire department. She sells 85 pies for \$12 each. The supplies to make the pies cost Carmen \$340. What is the unit rate of profit she made per pie?

$$85 \text{ pies} \times \$12 = \$1020 \text{ raised}$$

$$1020 - 340 = \$680 \text{ profit}$$

$$\frac{\$680}{85 \text{ pies}} = \$8 \text{ profit per pie}$$

7. Jamal is shopping with a gift card he received for his birthday. After he purchases two T-shirts, the gift card balanced dropped from \$50 to 20.02. What is the cost per shirt?

$$\frac{50 - 20.02}{2} = \frac{\$29.98}{2} = \$14.99 \text{ per shirt}$$

8. Rachel loves reading and is participating in a read a thon to raise money for a charity. She plans to read 15 books during the 90 day period. During the first 30 days, she reads 7 books. What is the unit rate of the number of days she has to read each book to reach her goal?

So, she has 60 days to read the remaining 8 books

$$\frac{60 \text{ days}}{8 \text{ books}} = \frac{7.5 \text{ days}}{1 \text{ book}}$$

9. The function  $f(t) = 1.90 + 1.40t$  shows the cost of a hamburger with different numbers of toppings. What is the slope and what does it mean?

1.40 → \$1.40 for every topping you add to your hamburger

10. The function  $f(t) = 5 + 1.75t$  show the cost to attend the state fair if you ride  $t$  rides. What is the slope and what does it mean?

1.75 → \$1.75 for every ride at the fair