

1. For $f(x) = 4x - 7$, what is the average rate of change for $-3 \leq x \leq 2$

$$f(-3) = 4(-3) - 7 = -19 \quad (-3, -19)$$

$$f(2) = 4(2) - 7 = 1 \quad (2, 1)$$

$$m = \frac{1 + 19}{2 + 3} = \frac{20}{5} = 4 \quad \boxed{m = 4}$$

2. Compare the slope of $f(x) = -\frac{1}{4}(8x - 10)$ to the table below what kind of slope do each have?

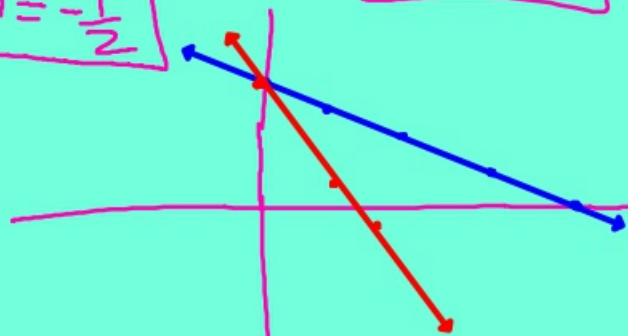
x	-3	-1	1	3	5
g(x)	10	9	8	7	6

$$m = -\frac{1}{2}$$

$$f(x) = -\frac{1}{4}(8x - 10)$$

$$f(x) = -2x + \frac{10}{4}$$

$$m = -2$$



3. Write the equation of the line that passes through $(5, 2)$ and $(13, 18)$

$$\textcircled{1} m = \frac{18 - 2}{13 - 5} = \frac{16}{8} = 2$$

$$\textcircled{2} y - y_1 = m(x - x_1)$$

$$y - 2 = 2(x - 5)$$

$$y - 2 = 2x - 10$$

$$\begin{array}{r} +2 \quad +2 \\ \hline y = 2x - 8 \end{array}$$



**Slope
Application
Problems**

Finding Slope Application:

1. If 3 movie tickets cost \$26.25 and 5 cost \$43.75, what would one movie ticket cost?

$$\begin{array}{l} (3, 26.25) \\ (5, 43.75) \end{array} \quad m = \frac{43.75 - 26.25}{5 - 3} = \frac{17.50}{2}$$

\$8.75 per ticket

2. If I paid \$17,500 in 2005 for my car brand new and in 2010 it is worth \$5000. What is the yearly depreciation?

$$\begin{array}{l} (0, 17500) \\ (5, 5000) \end{array} \quad m = \frac{5000 - 17500}{5 - 0} = \frac{-12500}{5} = -2500$$

\$2,500 drop per yr.

$$y = -2500x + 17500$$

3. In 1990, the average cost of a new house was \$123,000. By the year 2000, the average cost of new house was \$134,150. Write a linear equation to represent this situation.

$$\begin{aligned} & (0, 123000) \quad m = \frac{134150 - 123000}{10 - 0} = \frac{11150}{10} = 1115 \text{ per yr} \\ & (10, 134150) \\ & y = 1115x + 123000 \end{aligned}$$

4. In 1995 the average price of movie ticket was \$5.00. In 2010 the average cost a movie ticket is \$10.00. Write and equation to represent this situation.

2018 28 Plug in 28 for x
\$154,220

Application with solving linear equations

5. A company has monthly expenses represented by the function $c(x) = 2x + 1,200$, where x represents the number of items produced. If the company spent \$2000 last month, how many items were produced?

$$\begin{array}{r} 2000 = 2x + 1200 \\ -1200 \quad -1200 \\ \hline 800 = 2x \\ \underline{\quad} \quad \underline{\quad} \\ x = 400 \text{ items} \end{array}$$

6. The average price of a movie ticket in the year 2000 was \$5.39. The average price of a movie ticket in the year 2004 was \$6.21. Assuming the increase is linear, what would be the approximate price of a movie ticket in the year 2009?

$$\begin{array}{l} (0, 5.39) \\ (4, 6.21) \end{array} \quad m = \frac{6.21 - 5.39}{4 - 0} = \frac{.82}{4} = 0.205$$

\$0.21 per yr

$$y = 0.21x + 5.39$$

$$y = 0.21(9) + 5.39$$

\$7.28 in 2009

Identifying the meaning of slope and y-intercept

7. The equation $y = 461.19x + 3,492$ represents the value of a work of art from 1964 to 2005. What does the number 461.19 represent?

A. value of the work of art in 1964 *y-intercept*

B. value of the work of art in 2005

C. yearly decrease in value *slope isn't negative*

D. yearly increase in value

Identifying the meaning of slope and y-intercept

8.

Mr. Hanson recorded the typing speeds (in words per minute) of 25 students and their weeks of experience. The line of best fit for the data is $y = 4.4x + 18.9$ where x is the number of weeks of experience of a student and y is the student's typing speed. What is the meaning of the y -intercept for this set of data?

- A. the average typing speed of the students
- B. the highest typing speed recorded
- C. the improvement in typing speed per week for the average student

SLOPE

- D. the typing speed of a student with no experience

Identifying the linear equation:

9. A computer is purchased for \$1,200 and depreciates at \$140 per year. Which linear equation represents the value, V , of the computer after t years?
- A. $V = 1,200 - 140t$
 - B. $V = 140t$
 - C. $V = 140t - 1,200$
 - D. $V = 140(1,200 - t)$
10. Martha has \$180. She needs a total of \$2,000 to start an account. She earns \$60 per day working, of which she saves \$50. Which equation can she use to determine the number of days, d , she needs to work to reach her goal of \$2,000?
- A. $2,000 = 60d + 180$
 - B. $2,000 = 60d - 180$
 - C. $2,000 = 50d + 180$
 - D. $2,000 = 50d - 180$

Exit Ticket

9/25/18

SHOW WORK FOR CREDIT

1. For the function $f(x) = 2x - 3$, find the average rate of change for the interval $-8 \leq x \leq 2$
2. Write the equation of the line that crosses through the points $(-3, 7)$ & $(-8, 22)$
3. Write as an algebraic expression: five times the difference of a number and four is negative thirty