

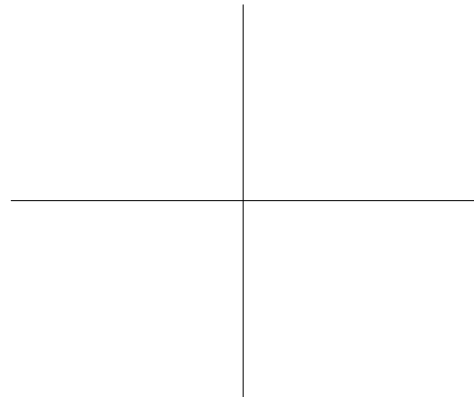


4. Find the slope and y-intercept of the line having equation  $6x + 2y = 12$ .

5. Sketch the graph of the line having equation

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

Show the scale used and label the coordinates of at least two points on the line.



6. Suppose that you have the following data concerning mean family income versus education for heads of household in the United States.

<u>Years of Education</u>	<u>Family Income</u>
7	\$26,000
12	\$44,500

Use a linear model to predict the mean family income for a family in which the head of household has 10 years of education. Show your work and state the linear model you used.

7. Complete the following sentence:

The property that characterizes a linear model is a \_\_\_\_\_ average rate of change.

8. The table below shows the height and weight of five grown men, whom we will call A, B, C, D, and E to protect their privacy. The height  $h$  is measured in inches and the weight  $w$  in pounds.

Name	A	B	C	D	E
Height $h$	66.5	67.5	68.5	69.5	70.5
Weight $w$	146	149	151	156	160

a. Find the equation of the regression line giving the weight  $w$  as a linear function of the height  $h$ .

b. Using the regression line you found in a., what is the expected weight of a man 76 in. tall?

c. Which of the five men would be considered heavy for their height using this model?

9. The following table gives the annual sales (in thousands) of modems (a device used to transmit computer data over a phone line) from 1983 to 1991.

Year	Modem Sales
1983	770

1984	960
1985	1220
1986	1380
1987	1810
1988	2020
1989	2520
1990	2740
1991	2900

a. Enter the year in list  $L_1$  and the sales in list  $L_2$  of your calculator, and find the linear regression model for this data. Give the model below in the form  $y = mx + b$

b. Complete the following table, based on the the linear regression model you found in a.

<b>Year</b>	<b>Predicted Modem Sales</b>
1983	
1984	
1985	
1986	
1987	
1988	
1989	
1990	
1991	

c. Give the following for the linear regression model:

correlation coefficient  $r =$  \_\_\_\_\_

sum square error: \_\_\_\_\_

d. State your opinion as to whether the linear regression model is a good model to use for this data.