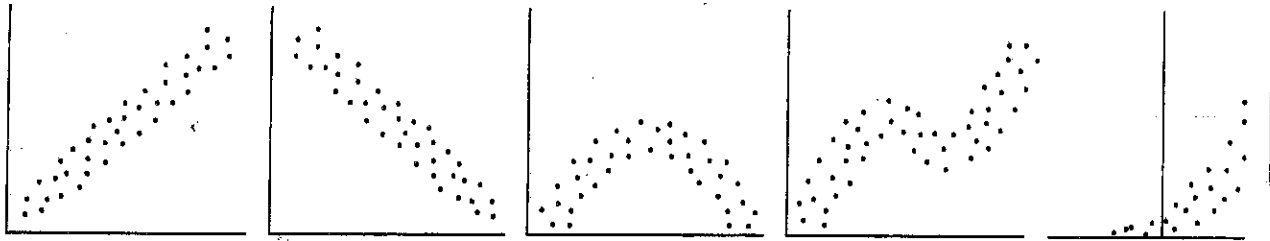


1. Use the given graph of the function f tell whether the data is linear or not.



2. What is the average rate of change of $f(x) = 2x + 3$ _____

3. For the data

x	3	4	5	6	7	8	9
y	4	6	7	10	12	14	16

- A. Draw a scatter plot by hand and with your calculator
- B. Select two points and manually find the equation of the line containing them
- C. Graph the line from part B on your hand drawn scatter plot
- D. Find the line of best fit on your calculator
- E. Place your line of best fit on your calculator stat plot

4.

Straight-line Depreciation Suppose that a company has just purchased a new computer for \$3000. The company chooses to depreciate the computer using the straight-line method over 3 years.


- (a) Write a linear function that expresses the book value of the computer as a function of its age.
- (b) Graph the linear function.
- (c) What is the book value of the computer after 2 years?
- (d) When will the computer be worth \$2000?

5.

Mortgage Payments The monthly payment p on a mortgage varies directly with the amount borrowed B . If the monthly payment on a 30-year mortgage is \$6.49 for every \$1000 borrowed, find a linear function that relates the monthly payment p to the amount borrowed B for a mortgage with the same terms. Then find the monthly payment p when the amount borrowed B is \$145,000.

6

Per Capita Disposable Income versus Consumption An economist wishes to estimate a linear function that relates per capita consumption expenditures C and disposable income I . Both C and I are measured in dollars. The following data represent the per capita disposable income (income after taxes) and per capita consumption in the United States for 1995 to 2003.



Year	Per Capita Disposable Income (I)	Per Capita Consumption (C)
1995	20,316	19,061
1996	21,127	19,938
1997	21,871	20,807
1998	22,212	21,385
1999	23,968	22,491
2000	25,472	23,863
2001	26,175	24,690
2002	27,259	25,622
2003	28,227	26,650

SOURCE: U.S. Department of Commerce

Let I represent the independent variable and C the dependent variable.

- (a) Use a graphing utility to draw a scatter diagram.
- (b) Use a graphing utility to find the line of best fit to the data. Express the solution using function notation.
- (c) Interpret the slope. The slope of this line is called the **marginal propensity to consume**.
- (d) Predict the per capita consumption in a year when disposable income is \$28,750.
- (e) What is the income in a year when consumption is \$26,900?