

**Solve the problem using your calculator.**

- 1) Ten students in a graduate program were randomly selected. Their grade point averages (GPAs) when they entered the program were between 3.5 and 4.0. The following data were obtained regarding their GPAs on entering the program versus their current GPAs. Use linear regression to find a linear function that predicts a student's current GPA as a function of his or her entering GPA.

Entering GPA	Current GPA
3.5	3.6
3.8	3.7
3.6	3.9
3.6	3.6
3.5	3.9
3.9	3.8
4.0	3.7
3.9	3.9
3.5	3.8
3.7	4.0

- 2) The paired data below consist of the test scores of 6 randomly selected students and the number of hours they studied for the test. Use linear regression to find a linear function that predicts a student's score as a function of the number of hours he or she studied.

Hours	Score
5	64
10	86
4	69
6	86
10	59
9	87

- 3) The paired data below consist of the temperatures on randomly chosen days and the amount a certain kind of plant grew (in millimeters). Use linear regression to find a linear function that predicts a plant's growth as a function of temperature.

Temp	Growth
62	36
76	39
50	50
51	13
71	33
46	33
51	17
44	6
79	16

**Solve the problem.**

- 4) The paired data below consist of the costs of advertising (in thousands of dollars) and the number of products sold (in thousands). By using linear regression, the following function is obtained:  $y = 55.8 + 2.79x$  where  $x$  is the cost of advertising (in thousands of dollars) and  $y$  is number of products sold (in thousands). Use this function to predict the number of products sold if the cost of advertising is \$6000.

Cost	Number
9	85
2	52
3	55
4	68
2	67
5	86
9	83
10	73

- 5) A study was conducted to compare the average time spent in the lab each week versus course grade for computer students. The results are recorded in the table below. By using linear regression, the following function is obtained:  $y = 88.6 - 1.86x$  where  $x$  is the number of hours spent in the lab and  $y$  is grade on the test. Use this function to predict the grade of a student who spends 8 hours in the lab.

Number of hours spent in lab (percent)	Grade
10	96
11	51
16	62
9	58
7	89
15	81
16	46
10	51

## Answer Key

Testname: 2.7PRAC

1)  $y = 3.67 + 0.0313x$

2)  $y = 67.3 + 1.07x$

3)  $y = 14.6 + 0.211x$

4) 72.54

5) 73.7