

Name Key

Use a graphing calculator to find the regression equation for each of the following problems. Round to thousandths.

1-2 The data in the table show the cooling temperatures of a freshly brewed cup of coffee after it is poured from the coffee pot to a serving cup.

Time (in min)	Temp (°F)
0	180
5	169
8	158
15	142
18	135
22	125
30	116
34	113
38	109
42	102
50	101

$y = 173.073(0.988)^x$ 1) Plot the points on a graphing calculator then find the appropriate regression equation.

exponential decreasing more rapidly

83.878°

2) Based on your equation in (a), what will be the temperature of the coffee after 1 hour?

60 minutes

$y = 173.073(0.988)^{60}$

3-4 The data in the table show the average growth rates of Weeping Higan cherry trees.

Age of Tree (in yrs)	Height (in ft)
1	6
2	9.5
3	13
4	15
5	16.6
6	17.5
7	18.5
8	19
9	19.5
10	19.7

$y = 5.939 + 6.284 \ln x$ 3) Plot the points on a graphing calculator, then find the appropriate regression equation.

logarithmic fnc increases rapidly then slows down

124.764 ft

4) Based on your equation, how tall will the tree be when the tree is 20 years old?

$y = 5.939 + 6.284 \ln(20)$

5-6 The data in the table shows the median number of hours of leisure time that Americans had each week in various years.

$y = 0.042x^2 - 1.256x + 26.119$ 5) Plot the points on a graphing calculator, then find the appropriate regression equation.

quadratic decreasing then increasing

Years since 1973	Leisure Time (in hrs per wk)
0	26.2
7	19.2
14	16.6
20	18.1
24	19.5
27	22.6

28.935 hrs

6) Based on your equation, what would be the average number of leisure hours per week in 2005?

2005 → 32 yrs after 1973

$y = 0.042(32)^2 - 1.256(32) + 26.119$

28.935 hrs