Sample Exercises

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem.

1) Find the logarithmic function that models the data in the table below. 1) _____

x	1	2	3	4	5
y	1.3	4.9	6.8	8.0	9.2

A) $f(x) = 1.39 + 4.86 \ln x$
B) $f(x) = 1.29 + 5.19 \ln x$
C) $f(x) = 4.86 + 1.39 \ln x$
D) $f(x) = 1.39 + 4.86 \log x$

2) The table below gives the violent crime rate (per 100,000 people) for a particular state every five years from 1955 to 1995. 2) _____

Year	Violent Crime Rate
1955	4.8
1960	5.0
1965	5.9
1970	7.3
1975	8.9
1980	10.4
1985	11.6
1990	12.3
1995	12.1

Use technology to find the cubic function that is the best fit for this data, where x is the number of years after 1955. Round to five decimal places.

A) $y = -0.00053x^3 + 0.02460x^2 - 0.01893x + 5.79798$
B) $y = 4.79798x^3 - 0.04893x^2 + 0.01950x - 0.00034$
C) $y = -0.00024x^3 + 0.02250x^2 - 0.03111x + 4.68687$
D) $y = -0.00034x^3 + 0.01950x^2 - 0.04893x + 4.79798$

3) The table below gives the number of births, in thousands, to females over the age of 35 for a particular state every two years from 1970 to 1986. 3) _____

Year	Births (thousands)
1970	42.5
1972	29.9
1974	36.0
1976	56.9
1978	71.1
1980	69.9
1982	57.2
1984	37.1
1986	25.9

Use technology to find the quartic function that is the best fit for this data, where x is the number of years after 1970. According to the model, how many births were there to females over the age of 35 in this state in 1987?

A) 30,005 B) 22,455 C) 27,505 D) 15,505

4) A furniture manufacturer decides to make a new line of desks. The table shows the profit, in thousands of dollars, for various levels of production. 4) _____

Number of Desks Produced	120	350	500	650	750
Profit (Thousands)	13	37	44	34	25

Find a quadratic function to model the data, and use the model to predict the profit if 450 desks are made.

A) Almost $42,000
B) Just under $45,000
C) Just over $40,000
D) Almost $44,000

Solution Key:
1-A;
2-D;
3-C;
4-A.