

NAME: _____

1. The number of answer machines sold can be modeled by the function $f(x) = -0.010789x^3 + 0.2226x^2 + 0.311x - 0.75$ where x is the number of years since 1980 and $f(x)$ is the number in millions.

Use this function to find the number of answer machines sold in 1986.

- [A] 8.4 million [B] 6.8 million [C] 8.6 million [D] 14.2 million

2. The table shows the number of hybrid cottonwood trees planted in tree farms in Oregon since 1987. Find a cubic function to model the data and use it to estimate the number of cottonwoods planted in 1998.

Years since 1987	1	3	5	7	9
Trees planted (in thousands)	0.8	10.6	44.4	116.6	241.6

- [A] $0.5x^3 - 0.2x + 0.7$; 429 thousand [B] $0.5x^3 + 0.3x^2 - 0.4x + 0.4$; 429 thousand
[C] $0.3x^3 - 0.4x + 0.7$; 433.8 thousand [D] $0.3x^3 + 0.3x^2 - 0.2x + 0.4$; 433.8 thousand

3. The table shows the number of llamas born on llama ranches worldwide since 1988. Find a cubic function to model the data and use it to estimate the number of births in 1999.

Years since 1988	1	3	5	7	9
Llamas born (in thousands)	0.9	15.1	61.3	158.7	326.5

4. A publisher reported these sales of a book series on hobbies.

Years since 1985	1	3	6	8	9
Books sold (thousands)	4.3	6.1	10.7	12.1	13.5

Use the cubic regression feature of a graphing calculator to find the cubic equation that best fits this data.

5. The table shows the Consumer Price Index (CPI) for several years.

Years since 1982	1	5	8	9	11
CPI	90.9	113.6	130.7	136.2	144.5

Find a cubic function to fit this data. Use the function to determine what the CPI was in 1970.

[1] B

[2] D

[3] $0.4x^3 + 0.4x^2 + 0.3x - 0.2$; 583.9 thousand

[4] $-0.0159039385x^3 + 0.2245994236x^2 + 0.3299097022x + 3.702259366$

[5] $y = -0.0220179435x^3 + 0.3241539606x^2 + 4.401248141x + 86.20180364$; 118.112