

6.4 Notes Mr. Cornwall

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8:30 AM

6.4 Polynomial Notes

Modelling Data With a Curve of Best Fit

Scatter Plot: A graph in which the values of two variables are plotted along two axes, often demonstrating a pattern we can approximate.

Curve of Best Fit: A curve that best models a given set of data (either linear, quadratic or cubic)

Polynomial Regression Tool: <http://www.xuru.org/rt/PR.asp> can handle functions of up to degree 3.

After finding the function, simply plug in a desired value of x to get a corresponding value of y

12

34

56

78

96

114

9 6

11 4

13 2

Example: The average retail price of gas from 1980 to 2000 can be modeled by the function: $P(x) = 0.8x^3 - 0.3x^2 + 4x - 22.5$ where P is the price of gas in cents per litre and x is the number of years after 1980. Determine the average price of gas in 1997.

Step One: Determine the value for x .

$$\begin{aligned}x &= 1997 - 1980 \\&= 17\end{aligned}$$

Step Two: Plug into the equation.

$$P(17) = 0.8(17)^3 - 0.3(17)^2 + 4(17) - 22.5$$

Step Three: Solve for $P(x)$.

$$P(17) = 3889.2 \text{ ¢/liter}$$

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