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1. Suppose that census counts of Midwest wolves began in 1990 and produced these estimates for several different years:

1992 2003

Time Since 1990 (in years)	0	2	5	7	10	13
Estimated Wolf Population	100	300	500	900	1,500	3,100

+200 +200 +400 +600 +1600

a. Plot the wolf population data and decide whether a linear or exponential function seems likely to match the pattern of growth well. For the function type of your choice, experiment with different rules to see which rule provides a good model of the growth pattern.

Exp. Growth

b. Use your calculator or computer software to find both linear and exponential regression models for the given data pattern. Compare the fit of each function to the function you developed by experimentation in Part a.

$y = 212.34x - 242.776$

$y = 138.3(1.278)^x$

c. What do the numbers in the linear and exponential function rules from Part b suggest about the pattern of change in the wolf population?

Slope
Growth per yr

Wolves in 1990

# of wolves in 1990

Growth Rate
27.8% per yr
.278 x 100

d. Use the model for wolf population growth that you believe to be best to calculate population estimates for the missing years 1994 and 2001 and then for the years 2015 and 2020.

1994 →

2001 →

2015 →

2020 →