

Practice Problems.

1. The population present in a bacteria culture over 5 days is given in the table below:

time (days)	0	1	2	3	4	5
population	30	133	214	337	527	819

- a) Find a good model for the data. b) Estimate the population after 7 days.
2. A company decides to develop a cost equation based on the quantity of the product produced in a day. They collected the following data:

quantity produced	20	35	50	65	80	95	110
cost	642.35	766.48	858.82	928.83	1005.32	1078.82	1140.79

- a) Find a good model for this data. b) According to the model, how much will producing 195 units cost the company? c) How many units could be produced for \$800?
3. The table below shows the yield (in mg) of a chemical reaction in the first 6 minutes.

time (minutes)	1	2	3	4	5	6
yield (mg)	1.2	6.9	9.3	12.7	14.1	15.7

- a) Use the scatterplot to find the best model to fit this data. b) Using that model, determine in how many minutes will the yield be 20 mg.

4. The table below shows the concentration of a drug in a patient's bloodstream t hours after it was administered.

time (hours)	.5	1	1.5	2	2.5	3
concentration (mg/cc)	.16	.19	.2	.19	.18	.17

Find a _____ model to fit this data. When was the concentration .1825 mg/cc?

5. After the winter break, 3 students came to school sick with the flu. The following table shows the number of students infected with the flu depending on the number of days after the winter break.

time (days)	0	5	10	15	20	25	30
number of infected students	3	6	14	23	23	21	9

Find the quadratic and quartic model that fit this data. Which model appears to better fit the data? Using the better model, find the day at which the number of infected students will reach the maximum. When will the number of infected students drop to zero?