Unit 3: Graphical Models – Review

For each table:

1. Identify the independent and dependent variables.
2. Identify units for the rate of change.
3. Describe the trend.
4. Determine whether it shows a linear trend, quadratic trend or exponential trend.

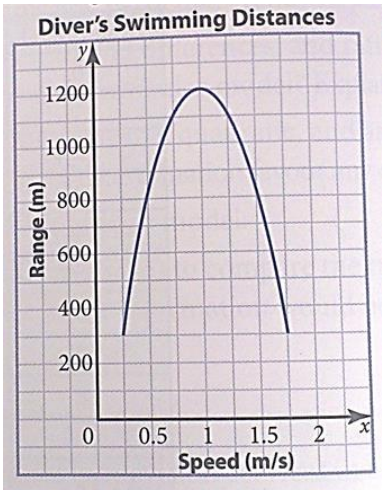
Year	Goose Population
1	1190
2	1250
3	1310
4	1380
5	1455
6	1530

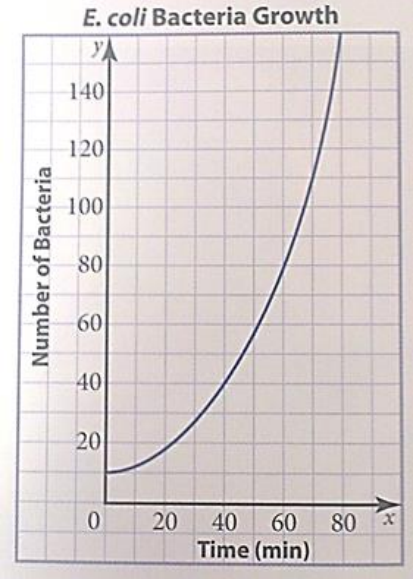
Year	New Teacher Hires
0	45
1	44
2	41
3	36
4	29

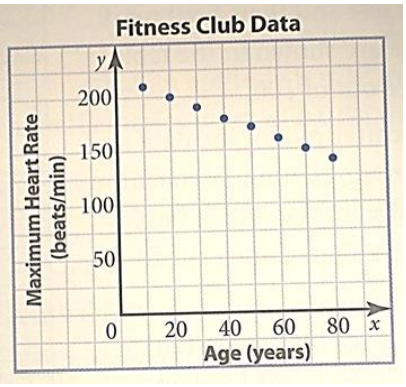
Week	Volume of Sand (m^3)
0	2000
1	1922
2	1836
3	1755
4	1682
5	1598
6	1520
7	1442
8	1338

For each graph:

1. Identify the independent and dependent variables.
2. Identify units for the rate of change.
3. Describe the trend.
4. Determine whether it shows a linear trend, quadratic trend or exponential trend.







One Question to Bind Them

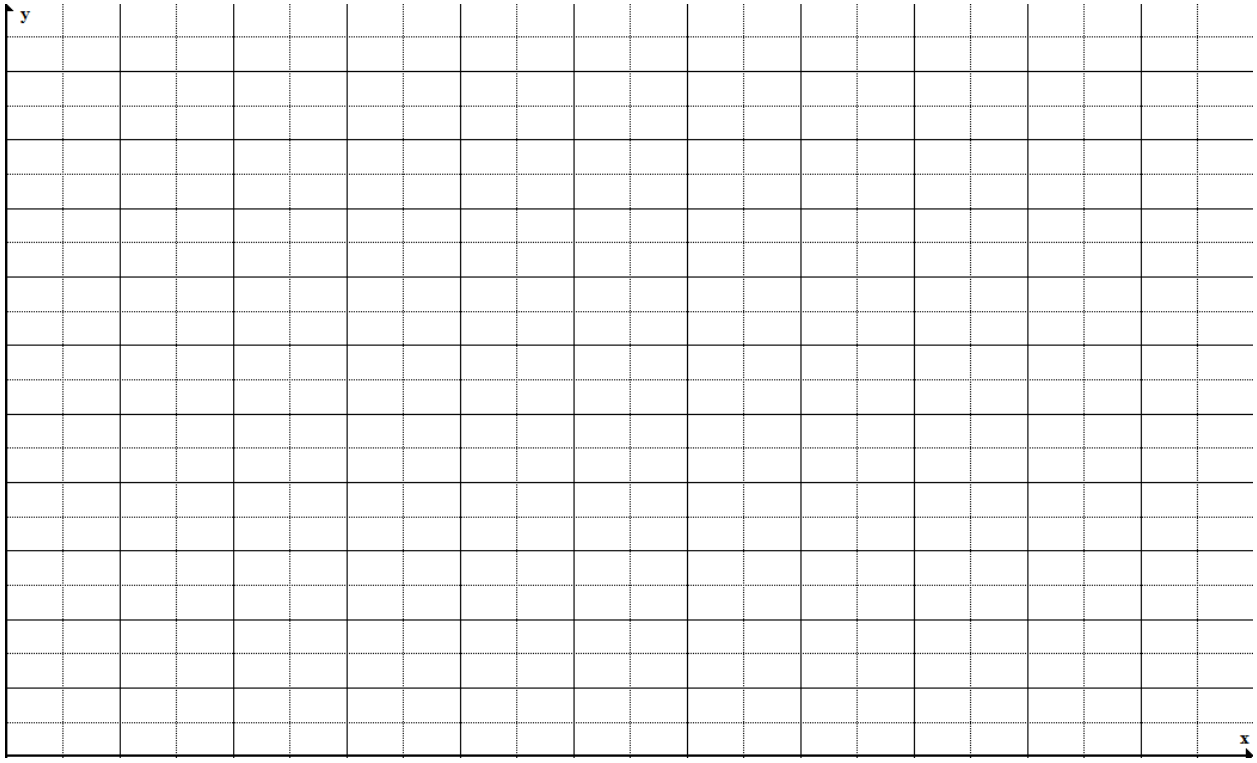
Mark is considering starting his own Web design business. There are already several similar companies and he is concerned that there might not be enough business in the future. He conducted some research and determined the number of business with web sites in the town seems to be growing.

Year	Number of Businesses with Web Sites
2000	256
2001	287
2002	317
2003	341
2004	368
2005	383
2006	397
2007	414

For the following analyses, you may use the next page.

a. Identify the independent and dependent variables.
b. Identify appropriate units for the rate of change.
c. Create a scatter plot of the data.
d. Use your graph to estimate the number of businesses with websites in 2010.
e. Which model appears to be most suitable? Linear, quadratic, exponential?
   Give reasons and include a line or curve of best fit.
f. Determine an equation for each type of model using your TI-83.
   Provide each equation and their corresponding r^2 values.
g. Based on the TI-83 Analyses, which model is the best fit?

   Change the window to look at data from the years 1980 to 2020.
h. Do you think one model does a particularly good job at predicting past behaviour?
i. Do you think one model does a particularly good job at predicting future behaviour?
j. Use each model to predict the number of businesses with websites in
   i. 1990
   ii. 2010


y
x