Modeling Day 1 – **ALL MODELS ARE WRONG, SOME MODELS ARE USEFUL!**

For each of the following problems,

- Use the TI to find each of the following models (record equation)
    - Linear
    - Exponential
    - Logarithmic
    - Power
- Record r
- Sketch the "line" through each data set
- Sketch the residual plot (residual = observed value – expected value)
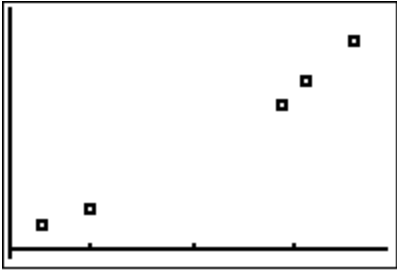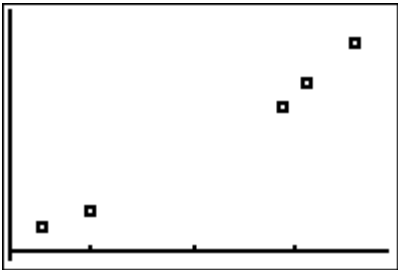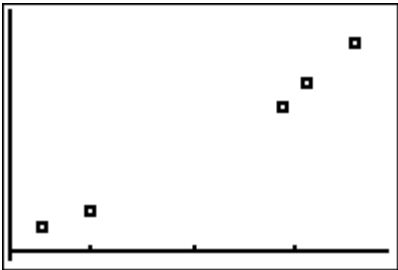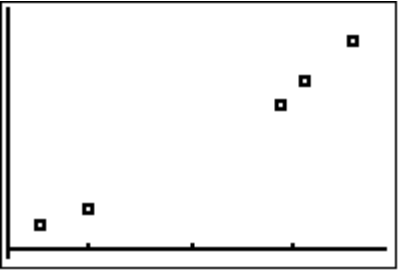- Determine which model is most appropriate

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As you work through these problems, make conjectures about

- the value of r
- the role of the residual plot

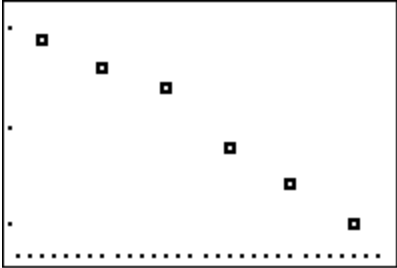How can each of these assist you in determining the most appropriate model?
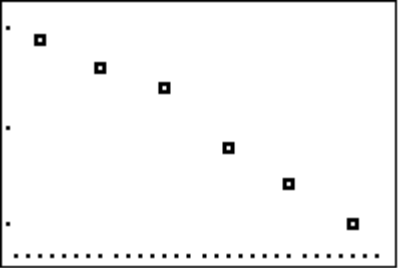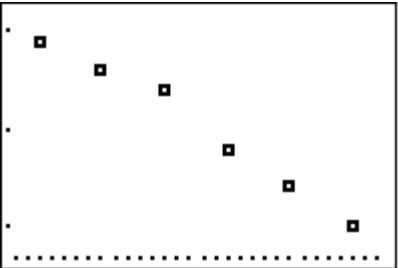
1.

x	y
1.5	11.5
2.0	20.0
3.9	72.4
4.1	84.5
4.6	104.2

	Linear	Exponential	Logarithmic	Power
equation				
r				
graph				
residual plot				
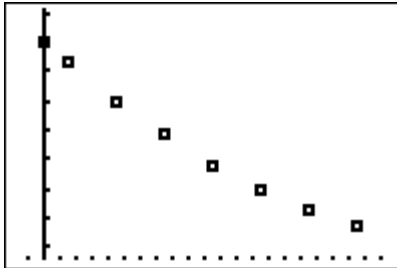
2.

x	y
1980	15.9
1985	15.6
1990	15.4
1995	14.8
2000	14.4
2005	14.0

	Linear	Exponential	Logarithmic	Power
equation				
r				
graph				
residual plot				
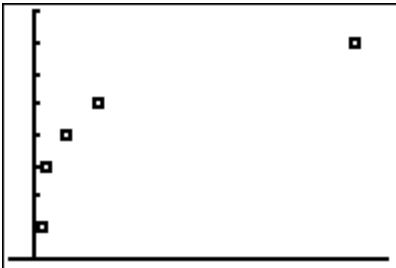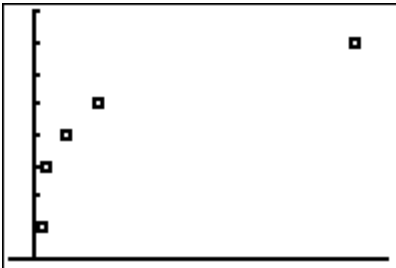
3.

x	y
0	10
1.5	9.3
4.5	7.9
7.5	6.8
10.5	5.8
13.5	5.0
16.5	4.3
19.5	3.7

	Linear	Exponential	Logarithmic	Power
equation				
r				
graph				
residual plot				

4.

x	y
20	4
40	6
100	7
200	8
1000	10

	Linear	Exponential	Logarithmic	Power
equation				
r				
graph				
residual plot				