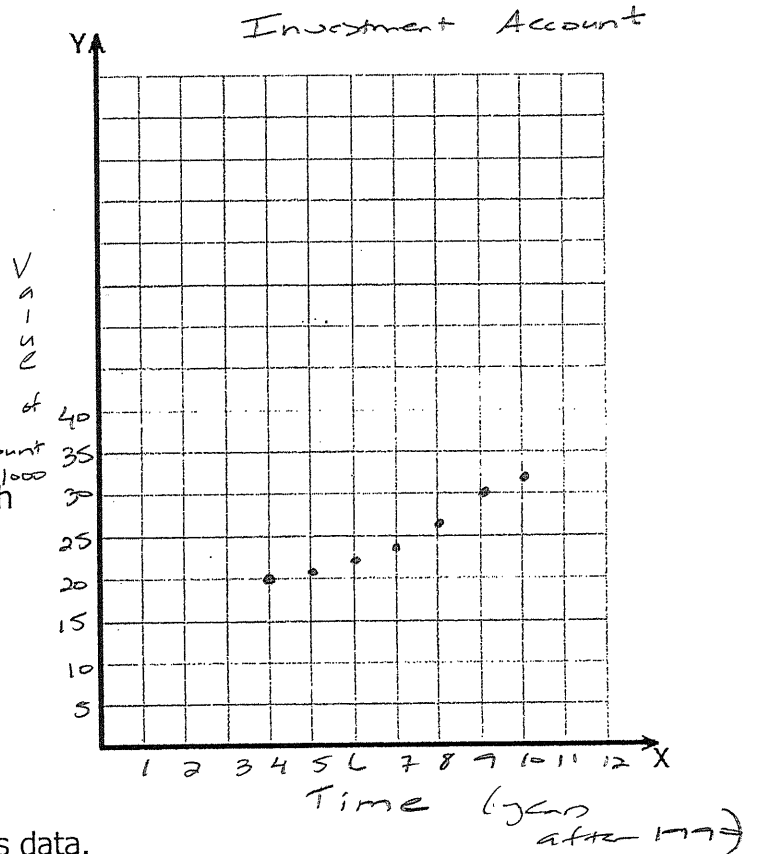FST: 2-5 Warm-up

The following data represents the amount of money an investor has in an investment account each year for 7 years. Round your answers to the nearest thousandth.

Year		Value of Account
1994	4	$20,000
1995	5	$21,516
1996	6	$23,355
1997	7	$24,885
1998	8	$27,434
1999	9	$30,053
2000	10	$32,622

1) Use a graphing calculator to graph the data, draw a scatter diagram with time as the independent variable and the value of the account as the dependent variable. Use x as "years after 1990."

Investment Account

Value of Account $1000
40 35 30 25 20 15 10 5

Time (years after 1990)

2) Find the exponential model of this data.

$$y = 14274.860 \,(1.085)^x$$

3) Find the sum of the **squared** residuals of the exponential model. → Put resid in L3, the 1-Var Stats L3

$$\sum x^2 = 328,586.518$$

4) Using the same data, find the linear model of this data.

$$y = 2107.821x + 10940.25$$

5) Find the sum of the **squared** residuals of the linear model.

$$\sum x^2 = 1,529,867.11$$

6) Determine which model (exponential or linear) best fits the data provided. Explain your answer.

→ Sum of squared residuals is less for the exponential model.