

$$y = ab^x$$

Exponential Regression

what function gave you table

name _____

1. In 1960, Walter purchased a plot of land for 10,000. The table shows how the value of the land has changed over time.

L₁
L₂

Year x	1960 = 0	1965 = 5	1970 = 10	1975 = 15	1980 = 20
Value y	10,000	21,000	41,000	82,000	163,000

exponential growth

Try using $x = 0$ to represent the year 1960.

Using your graphing calculator, use exponential regression to find an equation that best fits the data. Then, use the equation to predict what the land will be worth in the year 2020.

Equation: $y = 10209.59(1.149)^x$

Initial value: 10209.59 Growth/Decay% 14.9 \approx 15%

In the year 2020: 42,182,370.97
 $\frac{-2020}{1960} = 60 \text{ years} \leftarrow x$

2. The water supply of a small town was contaminated in 1970. The following table shows the population change over time.

Year	1970 = 0	1971 = 1	1973 = 3	1974 = 4	1975 = 5
Value	2500	1195	317	160	72

Try using $x = 0$ to represent the year 1970.

Using your graphing calculator, use exponential regression to find an equation that best fits the data. Then, use the equation to predict what the land will be worth in the year 2020.

Equation: $y = 2487.85(.4975)^x$

Initial value: 2487.85 Growth/Decay% 50.25%

Predict the population in 1977 ≈ 19

In what year will the population reach 0? _____

$x = ?$ $y = 0$

$$0 = 2487.85(.4975)^x$$