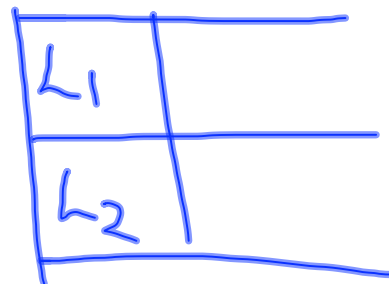


Exponential Regression in Finance

A person purchases a car for \$25000. the value of the car changes over time as shown in the chart.

Year	Value \$
0	25000
1	17500
2	14000
3	12600
4	11340
5	10206



a) Is the car an increasing or decreasing asset?

b) Perform an exponential regression on the data and state the regression equation

$$y = 21932.84 (0.85)^x$$

```
ExpReg
y=a*b^x
a=21932.83558
b=.8451979543
```

c) Predict the value of the car in year 10.

$$y = 21932.84 (0.85)^{10}$$

$$\underline{\$4318.01}$$

d) What is the average annual percentage depreciation on this car?

$$1 - 0.85 = 0.15$$

15% depreciation

Josh invests \$1000 into a GIC for 10 years. During the last 10 years he has recorded the value of his investment each year.

Year	Value \$
1	1052
2	1101.97
3	1156.19
4	1226.14
5	1298.11
6	1368.6
7	1449.62
8	1544.57
9	1638.02
10	1754.32

a) Determine the regression equation for this data

$$y = 980.82 (1.06)^x$$

b) Predict the value of the investment in 20 years.

$$y = 980.82 (1.06)^{20}$$

\$ 3145.62

c) What is the average annual rate of return on this investment?

$$1.06 = \frac{10620}{10000}$$

6%