

GGG Inv. 3-4 Additional Practice

For each table below, write an equation and determine the growth/decay RATE.

1.)

x	y
0	5
1	6
2	7.2
3	8.64
4	10.37
5	12.44

$$y = 5(1.2)^x$$

GF = 1 + Rate
 $1.2 = 1 + \text{Rate}$
 $-.2 = \text{Rate}$
 20% ↑

2.)

x	y
0	5000
1	5350
2	5724.5
3	6125.22
4	6553.98

$$y = 5000(1.07)^x$$

GF = 1 + Rate
 $1.07 = 1 + \text{Rate}$
 $-.07 = \text{Rate}$
 7% ↑

3.)

x	y
0	5000
1	3900
2	3042
3	2372.76
4	1850.75

$$y = 5000(.78)^x$$

GF = 1 + Rate
 $.78 = 1 + \text{Rate}$
 $-.22 = \text{Rate}$
 22% ↓

4.)

x	y
0	0.6
1	3
2	15
3	75
4	375
5	1875

$$y = 0.6(5)^x$$

GF = 1 + Rate
 $5 = 1 + \text{Rate}$
 $4 = \text{Rate}$
 400% ↑

5.)

x	y
0	0.5
1	1.35
2	3.65
3	9.84
4	26.58

$$y = 0.5(2.7)^x$$

GF = 1 + Rate
 $2.7 = 1 + \text{Rate}$
 $1.7 = \text{Rate}$
 170% ↑

6.)

x	y
0	400
1	528
2	696.96
3	919.99
4	1214.38

$$y = 400(1.32)^x$$

GF = 1 + Rate
 $1.32 = 1 + \text{Rate}$
 $.32 = \text{Rate}$
 32% ↑

7.)

x	y
0	400
1	372
2	345.96
3	321.74
4	299.22
5	278.28

$$y = 400(.93)^x$$

GF = 1 + Rate
 $.93 = 1 + \text{Rate}$
 $-.07 = \text{Rate}$
 7% ↓

8.)

x	y
0	600
1	138
2	31.74
3	7.3
4	1.68

$$y = 600(.23)^x$$

GF = 1 + Rate
 $.23 = 1 + \text{Rate}$
 $-.77 = \text{Rate}$
 77% ↓

9) Put in order of fastest to slowest GROWTH.

- ⑥ 47% increase GF = 1.5 ⑤
 ④ 150% increase GF = 5 ③
 ② 480% increase GF = 6.2 ①

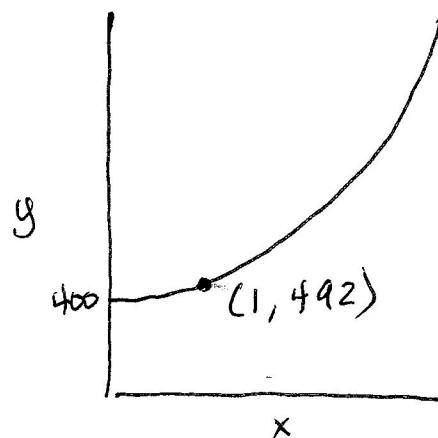
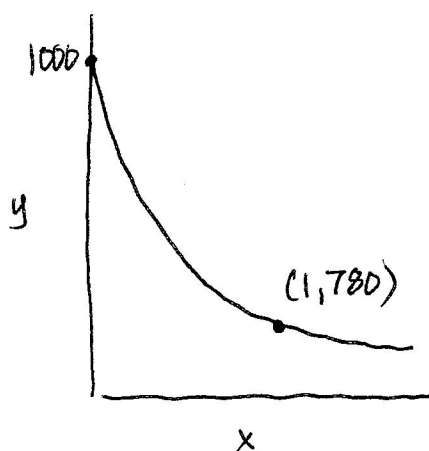
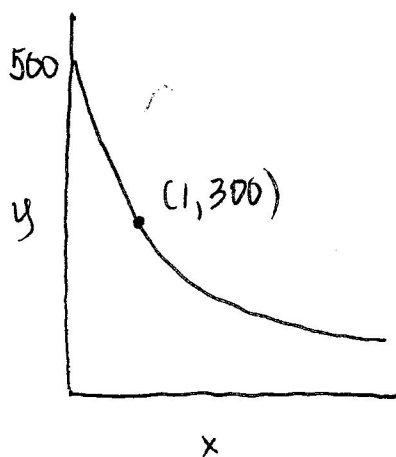
Factor	Rate ↑
1.47	47%
2.5	150%
5.8	480%
1.5	50%
5	400%
6.2	520%

10) Put in order of fastest to slowest DECAY.

- ⑥ 3% decrease Factor = 0.85 ③
 ① 85% decrease Factor = 0.23 ②
 ④ 10.5% decrease Factor = 0.9 ⑤

Factor	Rate ↓
.97	3%
.15	85%
.895	10.5%
.85	15%
.23	77%
.9	10%

All graphs below are exponential. Write the equation and find the growth/decay rate.



11.) $\begin{array}{c|c} x & y \\ \hline 0 & 500 \\ 1 & 300 \end{array} \rightarrow x \cdot 0.6$

$$y = 500(0.6)^x$$

40% ↓

12.) $\begin{array}{c|c} x & y \\ \hline 0 & 1000 \\ 1 & 780 \end{array} \rightarrow x \cdot 0.78$

$$y = 1000(0.78)^x$$

22% ↓

13.) $\begin{array}{c|c} x & y \\ \hline 0 & 400 \\ 1 & 492 \end{array} \rightarrow x \cdot 1.23$

$$y = 400(1.23)^x$$

23% ↑

Write equations for each scenario and describe what each variable and number means in the context of the situation.

14. Jeff puts \$1500 in the bank and earns 6.5% interest each year.

Total Amount of money after x years (\$)

$$y = 1500 (1.065)^x$$

Initial amount of money Jeff deposited (\$) at year 0

of years Jeff has had the money in the bank

Each year there is 6.5% more money than the year before.

15. Andy puts \$1500 in the bank and earns \$100 per year.

Total Amount of money after x years (\$)

$$y = 100x + 1500$$

\$100 is added each year

Initial amount deposited at year 0 (\$)

of years the money has been in the bank

16. The deer population is 2000 and is decreasing by 7.5% per year.

Total number of deer after x years.

$$y = 2000 (0.925)^x$$

There were 2000 deer when we started counting.

of years since we started keeping track of the deer population.

Each year there is 92.5% the number of deer as the previous year.