

Pick up from the stool

1. What is the y-intercept of the following graphs:

A) $y = 3(1/2)^x + 7$ 10

B) $y = 5(1/5)^x$ 5

C) $y = -2(4)^x + 10$ 8

D) $y = -8(2/7)^x$ -8

2. The rule for a geometric sequence is $a_n = 102(1/3)^{n-1}$

What is the fifth term in the sequence?

$$a_5 = 102(1/3)^{5-1}$$

$$a_5 = 102(1/3)^4$$

$$a_5 = 1.26$$

3. A town's population increases at a rate of 2% every year.
The current population is 6,500 people. What equation
would represent this scenario?

$$y = a(b)^x$$

$$y = 6500(1.02)^t$$

Exponential Regression

On the Calculator:

1. Put your data into L_1 & L_2
(STAT) (ENTER)

2. Calculate Exponential Regression
(STAT) (CALC) (0) (ENTER)

3. ExpReg

$$y = a * b^x$$

a = _____ (Initial value)

b = _____ (Growth/Decay Factor)

Practice Tables: Find the equation for each of the following tables

| x | y |
|---|-----|
| 1 | -1 |
| 2 | -2 |
| 3 | -4 |
| 4 | -8 |
| 5 | -16 |

$0^{-\frac{1}{2}}$
 $\cdot 2$
 $\cdot 2$
 $\cdot 2$
 $\cdot 2$
 $\cdot 2$

$$y = -\frac{1}{2}(2)^x$$

$$y = 1.6(2.5)^x$$

| x | y |
|---|--------|
| 1 | 4 |
| 2 | 10 |
| 3 | 25 |
| 4 | 62.5 |
| 5 | 156.25 |

$$y = 243\left(\frac{1}{3}\right)^x$$

| x | y |
|---|----|
| 1 | 81 |
| 2 | 27 |
| 3 | 9 |
| 4 | 3 |
| 5 | 1 |

On your own..... find the equation that represents each table

| | | | | | |
|------|---|----|----|-----|-----|
| X | 0 | 1 | 2 | 3 | 4 |
| F(x) | 5 | 15 | 45 | 135 | 405 |

$$y = 5(3)^x$$

| | | | | | |
|------|------|-------|--------|---------|----------|
| X | 3 | 4 | 5 | 6 | 7 |
| F(x) | 13.5 | 20.25 | 30.375 | 45.5625 | 68.34375 |

$$y = 4(1.5)^x$$

$$y = 4\left(\frac{3}{2}\right)^x$$

| | | | | | |
|------|----|------|-------|-------|---------|
| X | 2 | 4 | 6 | 7 | 9 |
| F(x) | 96 | 1536 | 24576 | 98304 | 1572864 |

$$y = 6(4)^x$$

Word Problem Practice

Fido did not have fleas when his owners took him to the kennel. The number of fleas on Fido after he returned from the kennel grew according to the equation $f = 8(3^n)$, where f is the number of fleas and n is the number of weeks since he returned from the kennel. (Fido left the kennel at week 0.)

- How many fleas did Fido pick up at the kennel? **8**
- What is the growth factor for the number of fleas? **3**
- How many fleas will Fido have after 10 weeks if he is not treated?



472,392 Fleas $8(3)^{10}$