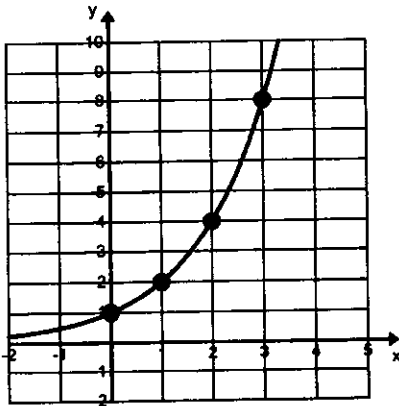


Determine the Exponential Equation, $f(x) = a \cdot b^x$, for each of the following graphs.

- 1) Determine that value of a in our equation by where the function passes through the y-axis.
- 2) Pick a second point on the function line. This will be the $(x, f(x))$ values for the function.
- 3) Solve for b .

$f(x) = a(b)^x$
Start

Example 1.

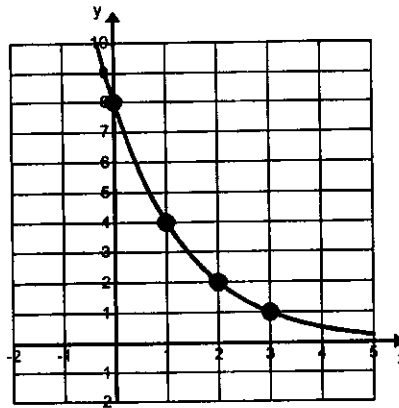


graph

$f(x) = 1(2)^x$

0	1
1	2
2	4
3	8

Example 2.



decay

$f(x) = 8(\frac{1}{2})^x$

0	8
1	4
2	2
3	1

Given the previous two examples, we now next look at the rate of change or slope between two individual points on our graphs.

$m = \frac{y_2 - y_1}{x_2 - x_1}$

Example 1:

- $x = \{0, 1\}$; rate of change = $\frac{1}{1}$
- $x = \{1, 2\}$; rate of change = $\frac{2}{1}$
- $x = \{2, 3\}$; rate of change = $\frac{4}{1}$

Example 2: Which one will have a greater rate of change?

- $x = \{0, 3\}$; rate of change = $\frac{(0, 8) - (3, 1)}{3 - 0}$
- $x = \{1, 2\}$; rate of change = $\frac{(1, 4) - (2, 2)}{2 - 1}$

$m = \frac{1 - 8}{3 - 0} = \frac{-7}{3}$

$m = \frac{2 - 4}{2 - 1} = \frac{-2}{1} = -2$