

Given the table determine whether it represents a linear or exponential function. Justify your answer.

1.

X	Y
-2	27
-1	9
0	3
1	1
2	.333
3	.111

$\rightarrow * \frac{1}{3}$
 $\rightarrow * \frac{1}{3}$

Linear / Exponential

Justify:

Multiply by $\frac{1}{3}$
each time

2.

X	Y
-2	10
-1	5
0	0
1	-5
2	-10
3	-15

$\rightarrow + -5$

Linear / Exponential

Justify:

Subtracts 5
(or add -5 each time)

Graph the following function and give the necessary information.

3. $f(x) = (3)^x - 2$

y Intercept: (0, -1)

Asymptotes: $y = -2$

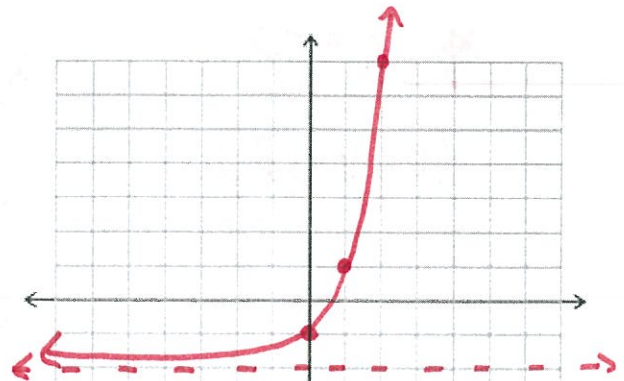
Growth or decay? _____

x Intercept: $(\log_3 2, 0)$

We will discuss

x	y
0	-1
1	1
2	7
3	25

$2 = 3^x$
 $\log_3 2 = x$



4. $f(x) = 3 \cdot (0.5)^x$

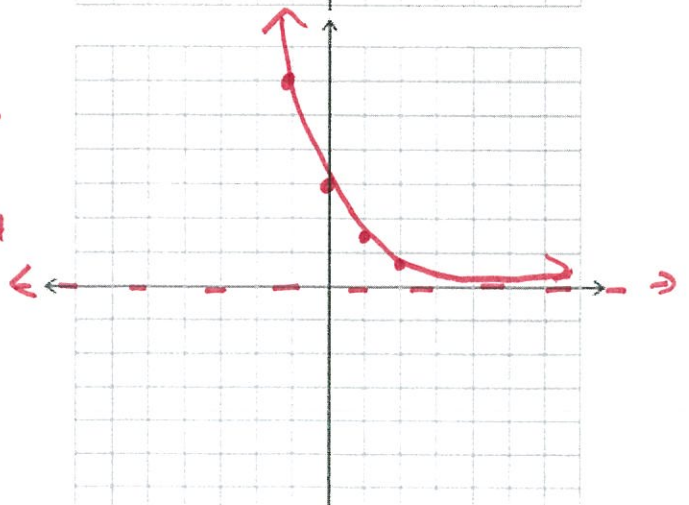
y Intercept: (0, 3)

Asymptotes: $y = 0$

Growth or decay? _____

x Intercept: None

x	y
0	3
1	$\frac{3}{2}$
-1	6
2	$\frac{3}{4}$



5. Without graphing, determine whether the following function is exponential growth or decay. Justify your reason.

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

growth because $\frac{4}{3}$ is greater than 1.

6. Using the above function modify the parent function so that the following transformation is true.

Right 4, down 6

New equation: $f(x) = \left(\frac{4}{3}\right)^{x-2-4} - 6 = \left(\frac{4}{3}\right)^{x-6} - 6$

7. $y = \log_2(x + 3)$

$$2^y = x + 3$$

x Intercept: $(-2, 0)$

Asymptote: $x = -3$

y Intercept: $(0, \log_2 3)$

x	y
-2	0
-1	1
1	2
5	3

