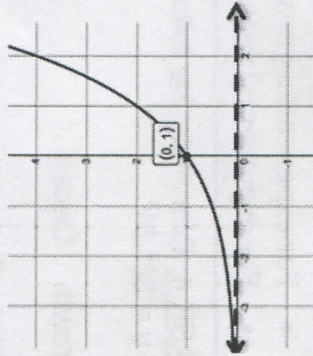


OBJECTIVE 1: Exponential Growth : $y = ab^x$

- "a" the initial value, y - intercept, (0, a)
- "b" growth factor if above 1

TASK 1: Fill in the blanks and determine the domain and range (in interval notation.)

c) $y = 1(2)^x$



Initial value: $a = 1 \rightarrow (0, 1)$

Growth factor: $b = 2$

Asymptote: $y = 0$

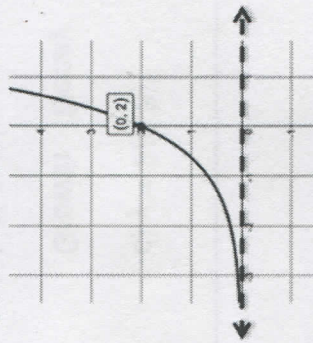
Domain: $(-\infty, \infty)$

Range: $(0, \infty)$

OBJECTIVE 2: Exponential Decay: $y = ab^x$

- "a" the initial value, y - intercept, (0, a)
- "b" decay factor if between 0 and 1

b) $f(x) = 2(3)^x$



Initial value: $a = 2 \rightarrow (0, 2)$

Growth factor: $b = 3$

Asymptote: $y = 0$

Domain: $(-\infty, \infty)$

Range: $(0, \infty)$

OBJECTIVE 1: Exponential Growth : $y = ab^x$

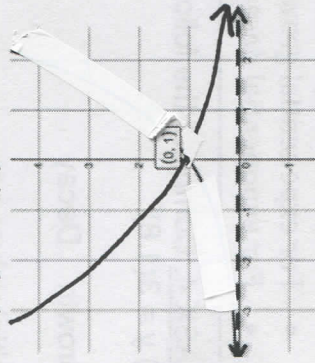
- "a" the initial value, y - intercept, (0, a)
- "b" growth factor if above 1

OBJECTIVE 2: Exponential Decay: $y = ab^x$

- "a" the initial value, y - intercept, (0, a)
- "b" decay factor if between 0 and 1

TASK 1: Fill in the blanks and determine the domain and range (in interval notation.)

c) $y = 1(2)^x$



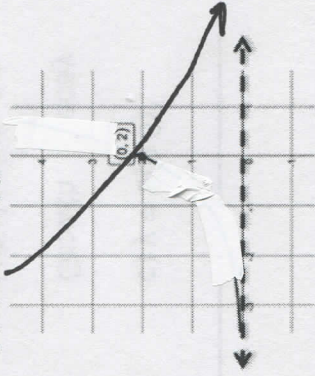
Initial value: $a = 1 \rightarrow (0, 1)$
 Decay Growth factor: $b = \frac{1}{2}$

Asymptote: $y = 0$

Domain: $(-\infty, \infty)$

Range: $(0, \infty)$

b) $f(x) = 2(\frac{1}{4})^x$



Initial value: $a = 2$
 Decay Growth factor: $b = 0.4$

Asymptote: $y = 0$

Domain: $(-\infty, \infty)$

Range: $(0, \infty)$

OBJECTIVE 3: Exponential Growth & Decay: $y = ab^x$

- Exponential Growth Functions: $a > 0$ and $b > 1$ then the graph is increasing or growing from left to right.
- Exponential Decay Function: $a > 0$ and $0 < b < 1$ the graph is decreasing or falling from left to right.

TASK 3: Sketch an image for each of the following:

a) exponential growth function

b) exponential decay function

OBJECTIVE 4: Exponential Growth/Decay Model: $y = a(1 \pm r)^t$

- Notice $1 \pm r$ replaced the b
- "r" stands for growth and decay rate
- For exponential growth you use $b = 1 + r$
- For exponential decay you use $b = 1 - r$

TASK 4: Complete the following in proper notation.

a) $y = 3(1.8)^x$

b) $y = 2.1(1.04)^x$

c) $y = 9(0.8)^x$

Growth Decay

Growth Decay

Growth Decay

Initial value: $a = 3$

Initial value: $a = 2.1$

Initial value: $a = 9$

y-intercept: $(0, 3)$

y-intercept: $(0, 2.1)$

y-intercept: $(0, 9)$

asymptote: $y = 0$

asymptote: $y = 0$

asymptote: $y = 0$

Growth/Decay factor: 1.8

Growth/Decay factor: 1.04

Growth/Decay factor: 0.8

Growth/Decay rate: 0.8

Growth/Decay rate: 0.04

Growth/Decay rate: 0.2

Still need help with:

$1.04 = 1 + r$

$0.8 = 1 - r$

$b = 1 + r$

$1.8 = 1 + r$

$b = 1 - r$