

The general equation for an exponential growth function is:

$$y = a(b)^x \text{ where,}$$

$a$ : Initial value

If  $b > 1$ : Exponential Growth

then  $b$ : Growth factor

and  $r$ : Growth rate  $b = 1 + r$

The general equation for an exponential decay function is:

$$y = a(b)^x \text{ where,}$$

$a$ : Initial value

If  $0 < b < 1$ : Exponential Decay

then  $b$ : Decay factor

and  $r$ : Decay rate       $b = 1 - r$

Identify the initial value, the growth or decay factor, and the growth or decay rate of the exponential function.

Example 1  $y = 3(1.8)^x$

Growth or decay \_\_\_\_\_

Initial value \_\_\_\_\_

Growth or decay factor \_\_\_\_\_

Growth or decay rate \_\_\_\_\_

Identify the initial value, the growth or decay factor, and the growth or decay rate of the exponential function.

Example 2  $y = 2.1(1.04)^x$

Growth or decay \_\_\_\_\_

Initial value \_\_\_\_\_

Growth or decay factor \_\_\_\_\_

Growth or decay rate \_\_\_\_\_

Identify the initial value, the growth or decay factor, and the growth or decay rate of the exponential function.

Example 3

$$y = 9(.8)^x$$

Growth or decay \_\_\_\_\_

Initial value \_\_\_\_\_

Growth or decay factor \_\_\_\_\_

Growth or decay rate \_\_\_\_\_

Identify the initial value, the growth or decay factor, and the growth or decay rate of the exponential function.

Example 4  $y = 2(.94)^x$

Growth or decay \_\_\_\_\_

Initial value \_\_\_\_\_

Growth or decay factor \_\_\_\_\_

Growth or decay rate \_\_\_\_\_

Identify the initial value, the growth or decay factor, and the growth or decay rate of the exponential function.

Example 5

$$y = 0.3^x$$

Growth or decay \_\_\_\_\_

Initial value \_\_\_\_\_

Growth or decay factor \_\_\_\_\_

Growth or decay rate \_\_\_\_\_

Identify the initial value, the growth or decay factor, and the growth or decay rate of the exponential function.

Example 6

$$y = 3(2)^x$$

Growth or decay \_\_\_\_\_

Initial value \_\_\_\_\_

Growth or decay factor \_\_\_\_\_

Growth or decay rate \_\_\_\_\_



Ex: 7

The Johnson Company calculates the value of its stock each year by using the function  $y = 120 (.98)^x$ .

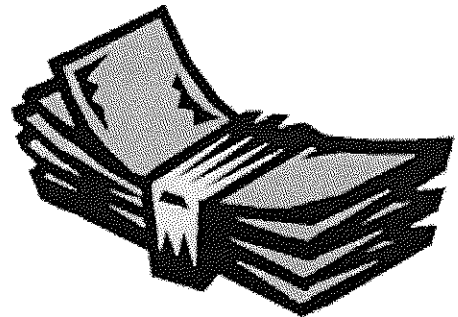
Identify the initial value, the growth or decay factor, and the growth or decay rate of the exponential function.

Growth or decay \_\_\_\_\_

Initial value \_\_\_\_\_

Growth or decay factor \_\_\_\_\_

Growth or decay rate \_\_\_\_\_



Ex: 8

Selena's starting salary for her new marketing management job is \$32,000. She calculates her projected salary for the next 5 years by using the function  $y = 32,000(1.12)^x$ .

Identify the initial value, the growth or decay factor, and the growth or decay rate of the exponential function.

Growth or decay \_\_\_\_\_

Initial value \_\_\_\_\_

Growth or decay factor \_\_\_\_\_

Growth or decay rate \_\_\_\_\_



