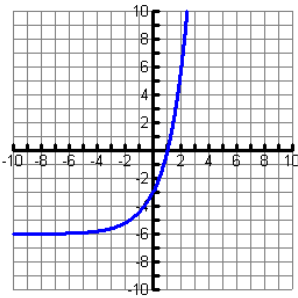


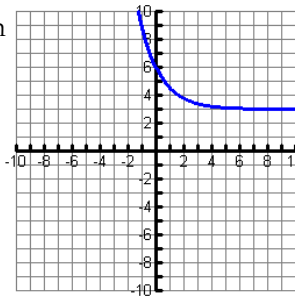
**Growth vs. Decay**

1. Circle the appropriate description of each graph.

A)



Exponential Growth



Exponential Growth

Exponential Decay

Exponential Decay

Circle the appropriate description of each equation.

B)  $f(x) = 4\left(\frac{5}{2}\right)^x$

Exponential Growth

$y = .3\left(\bar{.8}\right)^x$

Exponential Growth

Exponential Decay

Exponential Decay

**Factors, Rates, and Initial Values**

2. Given  $y = 1.23^x$ , identify the growth/decay factor, growth/decay rate, and the initial value.

Growth/Decay Factor \_\_\_\_\_

Growth/Decay Rate \_\_\_\_\_

Initial Value \_\_\_\_\_

3. Given  $f(x) = 3\left(\frac{4}{5}\right)^x$ , identify the growth/decay factor, growth/decay rate, and the initial value.

Growth/Decay Factor \_\_\_\_\_

Growth/Decay Rate \_\_\_\_\_

Initial Value \_\_\_\_\_

4. Given  $f(x) = 0.75(0.60)^x$ , identify the growth/decay factor, growth/decay rate, and the initial value.

Growth/Decay Factor \_\_\_\_\_

Growth/Decay Rate \_\_\_\_\_

Initial Value \_\_\_\_\_

### Equations from Context

5. A Gila Monster is about 16 cm long at birth. During the beginning of its life, the Gila Monster's length increases by about 15% each week.

Write a function that models the length of the Gila Monster at the beginning of the Gila Monster's life. Use  $x$  for the number of weeks and  $y$  for the length of the Gila Monster.

Find the length of the Gila Monster at the end of the 3 weeks.

6. Sam takes an 800 mg Ibuprofen for her nagging backache. Every hour that the Ibuprofen is in her system, a quarter of the medicine dissolves in her body. (These are made up facts. Always consult your physician or pharmacist before taking medication)

Write a function that models the amount of Ibuprofen in Sam's body over time. Use  $x$  for hours, and  $y$  for the amount of Ibuprofen, in mg, remaining in the body.

When there is less than 200mg of medicine left in the body, it is safe to take it again. How long will it take before Sam can take more medicine?

### Equations from Tables

7. Write an exponential function that models the points in the table.

X	Y
1	80
2	20
3	5
4	1.25

X	Y
1	-3
2	-9
3	-27
4	-81