

Exponential Functions
Practice Test

Name: Talley
Date: _____

Fill in the table to graph each function. Identify and show the y-intercept clearly. Does each function represent exponential growth or decay? Identify the domain and range for each function.

1. $y = 1 \cdot (2)^x$

4-square
ctrl T

a. Table

x	-2	-1	0	1	2	3
y	.25	.5	1	2	4	8

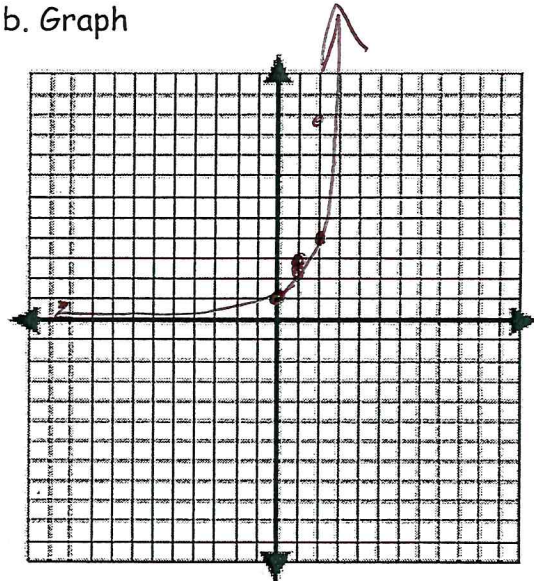
c. y-intercept: 1

d. Growth or Decay (circle one)

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

f. Range: $(0, \infty)$

b. Graph



2. $y = 6 \cdot (0.75)^x$

a. Table

X	-3	-2	-1	0	1	2
y	14.2	10.6	8	6	4.5	3.3

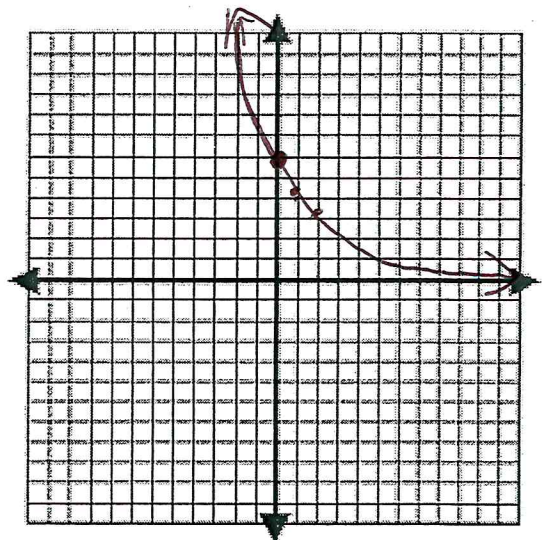
c. y-intercept: 6

d. Growth or Decay (circle one)

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

f. Range: $(0, \infty)$

b. Graph



Exponential Functions - Test A

Find the base (b) value for the given situations:

3. Something is decaying each year at a rate of 15%.

$$b = \underline{.85}$$

4. Something is growing each month at a rate of 5%.

$$b = \underline{1.05}$$

Writing the base

Identify the initial value and the base for each problem. Then tell whether it shows growth or decay.

5.

x	-3	-2	-1	0	1	2
y	1	3	9	27	81	243

3 3 3 3

Growth or Decay (circle one)

Initial Value (a): 27

Base (b): 3

4-square
Linear vs.
exponential

6. $f(x) = 6 \cdot (.5)^x$ Growth or Decay Initial Value: 6 Base: .5

Convert the units in the following problems to the units in the "original" problem:

Original Problem Units: Years

Convert the following values: 10 Months = $\frac{5}{6}$
 $\frac{10}{12}$

1,095 Days = 3 yr converting units
1095d $\cdot \frac{1 \text{ yr}}{365 \text{ d}}$

Original Problem Units: Hours

Convert the following values: 25 Minutes = $\frac{5}{12}$

6 Days = 144

Story Problems

7. You buy a house for \$250,000. Its value increases at a rate of 6% per year. Write an equation that models this situation and answer the following questions.

a.) Identify the initial amount(a).

250,000

b.) Growth or Decay (circle one)

1.06

c.) Growth/Decay Factor (b)

d.) Exponential Equation ($y = a \cdot b^x$)

$$y = 250,000(1.06)$$

e.) Original Problem Units: years

Find the value of your house after 10 years.

f.) Value of house after 10 years: \$447,712

$$y = 250,000(1.06)^{10}$$

One value after 10 years is \$447,712

8. You buy a computer for \$5,500. Its value depreciates by 11% every year. Write and solve an exponential equation to find the value of your computer after 48 months.

$$y = 5500(.89)^x$$

$$y = 3450.82$$

after 48 mos, the computer is worth \$3450.82