

Exponential Functions Practice
AFM

Name: _____
Date: _____ Period: _____

1. Below is a chart of the weight of a radioactive material on given days.

Day	0	1	2	3	4	5	6	7
Weight	1,000	897.1	802.5	719.8	651.1	583.4	521.7	468.3

(a) Find a model (linear, exponential, or quadratic) for the data. What is your equation?
(Find the regression equation!)

$$998.911 \cdot .898^x$$

(b) What do the values a and b represent?

$a = \text{starting pop}$ $b = \text{day \#}$

(c) What will the weight be after 15 days?

$$998.911 \cdot .898^{15} = 19.69$$

2. State the domain, range, and asymptote for the following functions. ~~Not~~ \rightarrow Not neg reflects

(a) $f(x) = -2^x$

Domain: \mathbb{R}

Range: $y < 0$

Asymptote: $y = 0$

(b) $g(x) = 2 + 5^{x-1}$

Domain: $-\mathbb{R}$

Range: $y > 2$

Asymptote: $y = 2$

(c) $h(x) = -4 - 3^x$

Domain: $-\mathbb{R}$

Range: $y < -4$

Asymptote: $y = -4$

(d) $f(x) = 3^{x+2}$

Domain: \mathbb{R}

Range: $y > 0$

Asymptote: $y = 0$

(e) $g(x) = 4^{-x}$

Domain: \mathbb{R}

Range: $y > 0$

Asymptote: $y = 0$

(f) $h(x) = 2 - 4^x$

Domain: \mathbb{R}

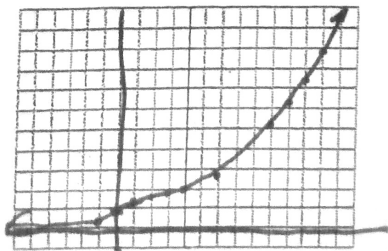
Range: $y < 2$

Asymptote: $y = 2$

3. Sketch the graph of the given functions by making a table of values.

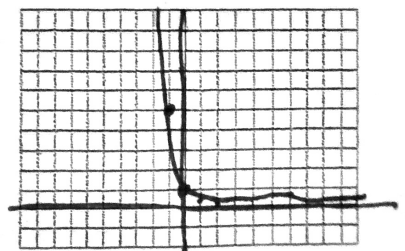
(a) $f(x) = (1.2)^x$

x	y
-1	.83
0	1
1	1.2
2	1.44
3	1.73



(b) $f(x) = (0.2)^x$

x	y
-2	25
-1	5
0	1
1	.2
2	.04



a) Use the equation below to find the value of y when $x = 2$.

$$y = 12.3(2.8)^x$$

$$y = \underline{12.3(2.8)^2 = 96.432}$$

b) Use the equation below to find the value of y when $x = 5$.

$$y = 14.6(1.8)^x$$

$$y = \underline{14.6(1.8)^5 = 275.88}$$

5.

a) If \$13,500 is invested at an interest rate of 6.27% per year, compounded monthly, find the value of the investment after 7 years.

$$13500 \left(1 + \frac{0.0627}{12}\right)^{12 \cdot 7}$$

$$\text{Amount: } \underline{20914.59}$$

b) If \$9,400 is invested at an interest rate of 2.45% per year, compounded quarterly, find the value of the investment after 9 years.

$$9400 \left(1 + \frac{0.0245}{4}\right)^{4 \cdot 9}$$

$$\text{Amount: } \underline{11711.10}$$

6.

a) The population of zombies has a relative growth rate of 5.62% per year. The population in 2004 was 11,455. Find the projected population of zombies for the year 2015.

$$11455 \left(1 + \frac{0.0562}{1}\right)^{11}$$

$$\text{Population: } \underline{20902.72}$$

b) The population of zombies has a relative growth rate of 9.68% per year. The population in 2010 was 9,756. Find the projected population of zombies for the year 2020.

$$9756 \left(1 + \frac{0.0968}{1}\right)^{10}$$

$$\text{Population: } \underline{24577.98}$$