Bell Work 2/23/2015

Please grab a half sheet of paper and answer the following questions on it.

1. If you could have an endless supply of any one food, what would you get?

2. What is the difference between growth rate and growth factor?

rate @ which something grows or decays

What remains following growth or decay.

100% + ?

100% - ?

Remember, Test Weds/Thurs!

Work from Friday

ebra 1 – Exponential Unit Review Name: _____

Date: _____ Hc

perties of exponents: Simplify the following

1. $\left(\frac{b^2}{2a^3}\right)^{-2}$

2. $(-4x^2)^2(2x)$

3. $\frac{x^2y^3z^{-2}}{x^3y^2z}$

x^{2-3} y^{3-2} z^{-2-1}

x^{-1} y^{1} z^{-3}

onential Functions

1. Write a function that doubles, starting at 4.

$y = 4 \cdot 2^x$

2. Write a function that doubles, starting at 2.

$y = 2 \cdot 2^x$

3. Write a function that triples and starts at 2 then has a vertical shift up 3 units

$y = 2 \cdot 3^x + 3$

4. Write a function that starts at 4 and has a growth rate of $\frac{1}{2}$.

$y = 4 \cdot \left(\frac{1}{2}\right)^x$

$\frac{y}{x z^3}$

Escalation Investigation

1. The price for the house you would like to buy is $95,000. Suppose the house appreciates by 20% each year.

   a. What is the growth rate? 20% or .20

   b. What is the growth factor? 120% or 1.20

   c. Find an equation $V(x)$ that gives you its value after x years.

   d. What will be the value of the house in 2015? $V(x)=95000(1.20)^x$

2. The population for United States in 2000 was 1.6 million people. Suppose the population growths by 3% each year.

   a. What is the growth rate? 3%

   b. What is the growth factor? 103% or 1.03

   c. Find an equation $V(x)$ that gives you the population after x years. $V(x) = (1.6\text{million})(1.03)^x$

   d. What will be the population in 2020? $V(20) = (1.6)(1.03)^{20}$

$= 2.89$ million

3. The price for gasoline has increase drastically over the past 10 years. The average price in 2000 was $0.97. Since then the price has increased at a rate of 2.7% each year.

   a. What is the growth rate? 2.7%

   b. What is the growth factor? 102.7% or 1.027

   c. Find an equation $V(x)$ that gives you its value after x years.

   d. What will be the price of gasoline in 2025? $V(x) = .97(1.027)^x$

$V(25) = .97(1.027)^{25}$

Depreciation Investigation

1. The price for the 2014 Honda you would like to buy is $12,250. Suppose the car depreciates 15% each year.

   a. What is the decay rate? 15% or .15

   b. What is the growth factor? 85% or .85

   c. Find an equation $V(x)$ that gives you its value after x years.

   d. What would the value of the car be after 1 year?

   e. What will be the value of the car in 2025?

$V(x) = 12{,}250(.85)^x$

2. The price for the 2011 BMW you would like to buy is $32,500. Suppose the car depreciates 7% each year.

   a. What is the decay rate? 7%

   b. What is the growth factor? 93% or .93

   c. Find an equation $V(x)$ that gives you its value after x years.

   d. What would the value of the car be in 8 years?

   e. What will be the value of the car in 2035? $V(x) = 32500(.93)^x$