Name: January 16, 2018

CC Algebra Teacher:

Exponential Growth and Decay

1. Kyra deposits $1000 into an account that pays 5% compound interest. How much will Kyra have in her account after 5 years?
2. The original value of an investment is $1400 and the value increases by 9% each year. Find the value of the investment after 25 years.
3. In 1985, there were 285 cell-phone subscribers in Mayville. The number of subscribers increased by 7.5% per year after 1985. How many cell-phone subscribers were there in 2008?
4. Identify whether each function is growth or decay.



* 1.



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1. Tell whether the function is an exponential growth function or exponential decay function, and find the constant percentage rate of growth.

$$P(t)= 3.5(1.09)^{t}$$

 a. Exponential Decay, 3.5% c. Exponential Growth, 9%

 b. Exponential Decay, 9% d. Exponential Growth, .09%

1. $ P(x) = 200(.85)^{x}$

 a. Exponential Decay, 85% c. Exponential Growth, 85%

b. Exponential Decay, 15% d. Exponential Growth, 200%

1. The number of people who have heard a rumor often grows exponentially. Consider a rumor that starts with 3 people, where the number of people who have heard it doubles each day that it spreads.

a. Write an exponential function to represent this situation.

b. Determine the number of people who know the rumor after 20 days.

1. Helmut from Finland, is heading towards a lighthouse in a very peculiar way. He starts 160 feet from the lighthouse. On his first trip he walks half the distance to the lighthouse. On his next trip he walks half of what he has left. On each consecutive trip he walks half the distance he has left.

a) Write an exponential equation to model the distance, D, that Helmut has remaining to the lighthouse after n trips.

b) How far is Helmut from the lighthouse after 6 trips?

c) Helmut believes he will reach the lighthouse after 10 trips. Is he correct?