NAME_____DATE_____PER._____

EXPONENTIAL GROWTH & DECAY – Day 1

Classify each as exponential growth or decay, write a function, answer the question. Round answers to the nearest whole number.

1. The Brown family buys a house for $160,000. The value of the house is expected to appreciate 6% each year. How much will the house be worth in 10 years?

Growth / Decay Function: _____

Answer: _____

2. A website has 10,000 registered users in 2010. The number of registered users increases by 20% each year. Predict the number of registered users in 2020.

Growth / Decay Function: _____

Answer: _____

3. Kyle has saved $500 of the money he earned working at Carousel Music. If he spends 10% of the money each week, how much money will he have at the end of 50 weeks?

Growth / Decay Function: _____

Answer: _____

4. In 2015, the value of a classic car is $80,000. The value of the car is expected to appreciate 15% each year. Predict the value of the car in 2020.

Growth / Decay Function: _____

Answer: _____

5. The population of the small town of Meadowbrook was at 8,900 in 2010. It has slowly been decreasing at a rate of 1.5% per year. Predict the population in 2030.

Growth / Decay Function: _____

Answer: _____

6. The Greens bought a condominium for $83,000. Assuming that its value will appreciate 6% per year, how much will the condo be worth in five years when the Greens are ready to move?

Growth / Decay Function: _____

Answer: _____

7. If you invest $1000 in an account with 4.5% annual interest, how much money will you have in 5 years?

Growth / Decay Function: _____

Answer: _____

Answer the following.

8. The mayor finds that the population of Johnson City over the last 10 years can be modeled by the exponential function $y = 25{,}000(1.05)^x$.

A) Is the population increasing or decreasing? By what percent?

B) What was the population 10 years ago?

9. Which of the following functions is a model of exponential decay?

A. $y = 2000(1.2)^x$ C. $y = 2000\left(\frac{3}{2}\right)^x$

B. $y = 2000(0.8)^x$ D. $y = 2000(3.25)^x$

Review. Show all work.

10. The area of a rectangular room is given by the equation $L^2 - 12L = 45$, where L is the length of the room. Find the length.

11. Which ordered pair represents one of the roots of the function $f(x) = 2x^2 + 3x - 20$?

A. $\left(-\frac{5}{2}, 0\right)$

B. $(-4, 0)$

C. $(-5, 0)$

D. $(-20, 0)$
