

**Quiz REVIEW: Exponential Growth & Depreciation**

1. You purchase a camper that is worth \$95,000. Your car is depreciating at a rate of 17%.

a) What is the common ratio? \_\_\_\_\_

b) Write an explicit equation in function notation to model this situation.  
\_\_\_\_\_

c) What will the value of your car be after 5 years? \_\_\_\_\_

d) How long will it take for the car to be worth only half of its original value or less? \_\_\_\_\_

2. The population for the city of Radical land is predicted using the exponential equation

$$y = 3500(1.2)^x.$$

a) By what percent is the population growing? \_\_\_\_\_

b) What will the population be in 10 years? \_\_\_\_\_

c) After which year from the initial population will the population reach 16000? \_\_\_\_\_

3. Suppose there are 2,500 chipmunks in a forest and the population is growing at a rate of 4.25% each year.

a) What is the common ratio?  $r =$  \_\_\_\_\_

d) Write an explicit equation in function notation form that models the growth of the chipmunk population. \_\_\_\_\_

e) What will the population of squirrels be after 15 years? \_\_\_\_\_

e) How long will it take the population to exceed 4,000? \_\_\_\_\_

4. You purchase a car that is originally worth \$35,000. You know the value of your car is going to depreciate quickly so you sell it a year later for \$25,000.

a) Find the common ratio:  $r =$  \_\_\_\_\_

b) What would the depreciation rate be as a percent? \_\_\_\_\_

c) Write an explicit equation to model this situation \_\_\_\_\_

**Quiz REVIEW: Exponential Growth & Depreciation**

1. You purchase a camper that is worth \$95,000. Your car is depreciating at a rate of 17%.

a) What is the common ratio?  $(1 - .17) = .83$

b) Write an explicit equation in function notation to model this situation.

$$y = 95000(.83)^x$$

c) What will the value of your car be after 5 years?  $\$37,420.89$

d) How long will it take for the car to be worth only half of its original value or less? 4 years

LOOK FOR 47500 or less in table

2. The population for the city of Radical land is predicted using the exponential equation

$$y = 3500(1.2)^x.$$

a) By what percent is the population growing? 20%

b) What will the population be in 10 years? 21,671 people

c) After which year from the initial population will the population reach 16000? year 9

3. Suppose there are 2,500 chipmunks in a forest and the population is growing at a rate of 4.25% each year.

a) What is the common ratio?  $r = 1.0425$

d) Write an explicit equation in function notation form that models the growth of the chipmunk population.  $y = 2500(1.0425)^x$

lol :)

e) What will the population of squirrels be after 15 years? 4668 squirrels/chipmunks

e) How long will it take the population to exceed 4,000? 12 years

4. You purchase a car that is originally worth \$35,000. You know the value of your car is going to depreciate quickly so you sell it a year later for \$25,000. ratio:  $25000 \div 35000$

a) Find the common ratio:  $r = .71$  (or  $\frac{5}{7}$ )

b) What would the depreciation rate be as a percent? 29%  $\leftarrow (1 - \underline{\quad}) = .71$

c) Write an explicit equation to model this situation  $y = 35000(.71)^x$

$$y = 35000\left(\frac{5}{7}\right)^x$$