**NAME:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ALGEBRA 2 COMMON CORE**

 **MODULE 4 TEST REVIEW**

The population in Viscaopolis in 2010 was 1,350,000. Since then, the population has increased by $8.5\%$ each year. Write an exponential growth model that gives Viscaopolis’ population, in terms of $t$, where $t$ is the number of years since 2010?

Solve for x: 93x = 27x-1

Cups are stacked, with a base (1st row) of 100 cups, then 97 cups, then 94 cups… write an expression to represent the number of cups in terms of n. Then, figure out how many total cups will be in the first 27 rows.

Identify whether each function is growth or decay:

y = 3(7)x y = 5(3)x/2 y = 10(2)-x y = 9(e)2x

The following equation is used for the value of a house: V(t) = 215,000(.91)t. Where t represents the number of years since the house was purchased.

* What was the house purchased for?
* Is the value of the home increasing or decreasing?
* What is the rate of growth or decay?
* How much is the home worth 13 years after it was purchased?

You get your first job. You are making $42,550 per year. Each year, you are promised a 4% raise. Write a geometric series formula, Sn, to represent your total earnings over n years. Then, use this formula to calculate how much money you would earn in the first 10 years, to the nearest cent.