

**Linear Systems and STAT Finance Examination  
Review Part II**

12. How many years would it take Titer to spend her inheritance of \$2,500,000 if she has it in an account that compounds monthly at 7.7% and she pulls out \$53,000.00 each month to spend?

13. Yopi is looking for an investment that will allow her to accumulate \$15,000 over 7 years when she deposits \$200 at the end of each quarter. What rate of interest would she need if it compounds quarterly?

14. Write a formula for the sum of this infinite geometric sequence.

$$\sum_{k=1}^{\infty} 512 \left( \frac{1}{4} \right)^{k-1}$$

15. Expand the series and then evaluate it.

$$\sum_{k=1}^6 2187 \left( \frac{1}{3} \right)^{k-1}$$

16. A new car sells for \$55,349. It exponentially depreciates at a rate of 9.9% to \$33,300. How long did it take the car to depreciate to this amount? Round your answer to the nearest tenth of a year.

17. Straight Line Depreciation

A car is originally worth \$44,000. It takes 14 years for this car to totally depreciate.

- a. Write the straight line depreciation equation for this situation.
- b. How long will it take for the car to be worth half of its value?
- c. How long will it take for the car to be worth \$20,000? Round your answer to the nearest tenth of a year.