

Math 1414
College Algebra
Lab Exercise # 10
Dr. Word

Name: _____

Date: _____

Section: _____

Semester: _____

Grade: _____

Attach computer printouts to this sheet and submit your assignment to your instructor or the lab supervisor by Friday of the week assigned.

Problems were taken from the College Algebra, Ambrose MacMillan text, 1976 and the College Algebra, 3rd edition text, Larson/Hostetler, DC Heath, 1993.

- 10a. If there are no duplicates, use the TI-83 to determine the number of direct-lineage ancestors you having in the seven generations that immediately proceed you.
- 10b. A handball falls 16 feet. If after each fall it rebounds $\frac{3}{4}$ of the distance it has fallen, use the TI-83 to determine how far the ball has traveled when it strikes the ground the fifth time.
- 10c. Use the TI-83 to determine how far the center of mass of the handball in 10b. travels when it has come to a complete rest. (Infinite number of bounces)
- 10d. The amount of life insurance per household (in households that carry life insurance) from 1970 through 1988 can be approximated be the model
 $f(t) = 0.2187t^2 + 0.6715t + 26.67$ where t is between 0 and 18. In this model, $f(t)$ represents the amount of life insurance (in thousands of dollars) and t represents the calendar year with $t = 0$ corresponding to 1970. Graph and print the model. You want to adjust this model so that $t = 0$ corresponds to 1980 rather than 1970. To do this you shift the graph of $f(t)$ to the left 10 units and obtain $g(t) = f(t+10)$. Write $f(t+10)$ and then write $g(t)$ in standard form. Graph $g(t)$ on the graph with $f(t)$, print, and compare the graphs.

College Algebra: Lab #10

*****If in doubt, Print it out!*****

10a) Draw a family tree and you will notice it needs 2^7 .

10b) Now before you do this, imagine what the path of the ball will be. Start your calculations from when your ball bounces for the first time. It will return and bounce $16 \cdot \left(\frac{3}{4}\right)$ feet. (This is your initial height so $n = 4$ now since the ball has bounced once.) Set up the equation just like your textbook would to find the sum of a series. Don't forget that the ball goes up and down so the path is made twice. Also do not forget the original fall of 16 feet.

10c) Refer to text for needed equations.

10d) First you need to find out the equation of $g(t) = f(t+10)$ using the original equation of $f(t)$. Then graph the two functions in the equation editor adjusting the window setting accordingly.