1. **Money-R-Us** investments pays interest at an annual rate of 8.2% compounded quarterly, while **Dough-R-Us** investments pays 8.1% compounded continuously.

   a. Which investment company would you choose? *(Assuming that you want the greatest yield).*
   
   b. How much should you deposit today in **Money-R-Us** so that you will be able to withdraw $1,000 at the end of each of the next three years, after which nothing will be left in the account? (In other words, what is the present value of such an annuity?)
   
   c. Repeat part (b) with **Dough-R-Us**.

2. **Swenson** owns a piece of land in the suburbs of a hick town named **Smorris**. This piece of land’s market value, $t$ years from now, will be

   \[ V(t) = 20,000e^{\sqrt{t}} \] dollars

**Swenson** is such a *capitalistic-minded* person, i.e. not only does he love to make money but he prefers to do it rapidly. Thus, he would like to know whether he should sell his piece of land and invest the money at **Dough-R-Us** investments in the previous problem. He has hired you to find out if he should sell, and if so, when should he sell. In other words, is there a time when the rate of growth of his land’s value is not as good as that offered by **Dough-R-Us**? If so, when?

*(Are there certain assumptions that need to be made before a mathematical approach can be used to solve this problem?)*

3. If prevailing interest rate remains constant at 8.1% compounded continuously, when will the present value of the market price of **Swenson**’s piece of land be the maximum?