**Applications Problems Involving Continuous Compounding**

There is a special growth formula that we use for problems involving ***continuous compounding****.*

**Continuous Compound Interest Formula**

$$y=a(e)^{r∙t}$$

**y = final amount a = starting amount r = rate (in decimal form) t = time**

1. The growth of a bacteria colony is a petri dish can be modeled by the equation y = 75e.4t, where t is the time in hours. Approximate the number of bacteria after two full days.

2. Your grandparents deposited $500 into a trust fund for you the year you were born. If the bank paid 6.2% interest compounded continuously, what is the account balance today?

3. Nalani plans to buy a new car in 5 years. How much should you deposit into a bank paying 7% continuous interest if she plans on spending $20,000 for her car?

4. Nick is depositing money into an account paying 5¾% interest compounded continuously. How long will it take for his money to double?