Name: _____ Date: _____

Exponential Growth and Decay

1. The value of an Accord bought new for $25,000 depreciates by 20% each year.
   a. growth or decay? b. exponential function:

   c. Using your equation, how much would your car cost after 8 years:

   d. If your car costs $8,200, approximately how many years old would you expect it to be?

   e. Will the graph ever reach zero? Why?

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2. 5 people in our class are sick. The sickness spreads to additional students at a rate of 10.2% every day.
   a. growth or decay? b. exponential function:

   c. Using your equation, how much many students would be sick after 15 days:

   d. If 14 people are sick, approximately how many days have passed?

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3. You invest $1500 into a bank account for 8 years. If the bank offers 7.2% interest, how much will you have if the bank compounds:
   a. Yearly b. Quarterly

   c. Daily d. Continuously

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4. You charge an $800 iPhone on a credit card that has a 12% interest rate. Interest is compounded monthly.

   a. growth or decay?

   b. exponential function:

   c. Using your equation, how much will you owe after ____ years:

   - 3
   - 5

5. You invest $500 into a savings account that is compounded daily at an interest rate of 4%

   a. How much do you have after 20 years?

   b. About how long does it take for your money to double?

   c. How long would it take for your money to triple?

6. You invest $2500 into a bank account for 5 years. If the bank offers 3.8% interest, how much will you have if the bank compounds:

   a. Annually

   b. Monthly

   c. Weekly

   d. Continuously

7. If you have $5000 to invest, would it be better to invest it in a fund that offers 2.3% interest compounded monthly or 2.2% interest compounded continuously? Why?