

**Remembering Exponentials**

Basic Exponential Function-

Exponential Growth and Decay-

Compound Interest-

**What would happen if we compounded more often??**

Compounded...	Value
Yearly	$(1 + \frac{1}{1})^1 = 2$
Semi-Annually	
Quarterly	
Monthly	
Weekly	
Daily	
Hourly	
Every minute	
Every second	

Continuously Compounded Interest-

## Practice

1. Suppose you invest \$5000 in the bank. Calculate the value of each investment after 2 years.
  - a. 4.5% APR compounded annually
  - b. 4.5% APR compounded quarterly
  - c. 4.5% APR compounded continuously
  - d. How much more money does he earn compounding quarterly instead of annually?
  - e. Using algebra find how long it would take the account to double using quarterly compounding.
2. If you deposit \$6500 into an account paying 8% annual interest compounded yearly, how much money will be in the account after 7 years?
3. A man invests \$10,000 in an account that pays 8.5% interest per year, compounded quarterly. What is the amount of money that he will have after 3 years?
4. The first credit card that you got charges 12.49% interest to its customers and compounds that interest monthly. Within one day of getting your first credit card, you max out the credit limit by spending \$1,200.00. If you do not buy anything else on the card and you do not make any payments, how much money would you owe the company after 6 months?
5. How much money would you need to deposit today at 9% annual interest compounded monthly to have \$12,000 in the account after 6 years?