Honors Pre-Calc **11-29-07**

Interest Compounded Annually

$$A = P(1+r)^n$$

Interest Compounded *k* Times per Year

$$A = P\left(1+\frac{r}{k}\right)^{kt}$$

Compounded Continuously

$$\lim_{k\to\infty}\left(1+\frac{r}{k}\right)^{\frac{k}{r}}$$

$$A = Pe^{rt}$$

1. Find the amount ***A*** accumulated after investing a principal ***P*** for ***t*** years at an interest rate ***r*** compounded annually.
   P = $15,500
   r = 9.5%
   t = 12

2. Find the amount ***A*** accumulated after investing a principal ***P*** for ***t*** years at an interest rate *r* compounded ***k*** times per year.
   P = $25,300
   r = 4.5%
   t = 25
   k = 12

3. Find the amount ***A*** accumulated after investing a principal ***P*** for ***t*** years at an interest rate *r* compounded continuously.
   P = $8,875
   r = 4.4%
   t = 25

Annual Percent Yield (APY)

comparing compounded k times a year to compounded annually

4. Find the annual percentage yield (APY) for $8,000 at 5.75% compounded daily.

Future Value of an Annuity (Savings)

$$FV = R\frac{(1+i)^n - 1}{i}$$

5. Find the future value ***FV*** accumulated in an annuity after investing periodic payments ***R*** for ***t*** years at an annual interest rate ***r***, with payments made and interested credited ***k*** times per year.

   R = $610
   r = 6.5%
   t = 25
   k = 12

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Present Value of an Annuity (Loan)

$$FV = R\frac{(1+i)^n - 1}{i}$$

6. Find the present value ***PV*** of a loan with an annual interest rate ***r*** and periodic payments ***R*** for ***t*** years with payments made ***k*** times per year.

   R = $1856.82
   r = 6.5%
   t = 30
   k = 12