

	Interest	Future Value	Present Value
Simple Interest	$I = Prt$	$A = P(1 + rt)$	$P = \frac{A}{1 + rt}$
Compound Interest	$I = A - P$	$A = P(1 + i)^n$	$P = \frac{A}{(1 + i)^n}$
Continuous Interest	$I = A - P$	$A = Pe^{rt}$	$P = \frac{A}{e^{rt}}$
Ordinary Annuity		$S = R \left(\frac{1 + i)^n - 1}{i} \right)$	$P = R \left(\frac{1 - (1 + i)^{-n}}{i} \right)$

1. You borrow \$25,000 at 7% for 9 months. How much interest do you pay?
2. If you invest \$5000 for 5 months and make \$20 what is the simple interest rate?
3. At what rate of simple interest would you have to invest \$5000 to make \$120 in 9 months?
4. How much money would you have to invest at 5% rate of simple interest to have \$5500 in 6 months?
5. How much money will you have if you put \$6500 in an account paying 12% compounded quarterly for 6 years?
6. Find the interest earned on \$8000 at 4% interest compounded semi-annually for 6.5 years.
7. You put \$500 on you credit card, which charges 15% interest compounded monthly. If you make no payments, how much do you owe in one year? in two years?
8. The three following problems are related:
 - (a) Deposit \$1000 in an account paying 5% compounded monthly. After one year how much money do you have?
 - (b) How much interest did you make?
 - (c) If that interest had been earned as simple interest, what would the simple interest rate have been? (this is the **effective rate**)

- (d) Is the effective rate larger or smaller than the stated (a.k.a. nominal) rate?
9. Find the present value of the future amount \$42,000 if the money is deposited in an account paying 12% compounded monthly for 7 years.
 10. A firm of attorneys deposits \$15,000 of profit-sharing money in an account at 6% compounded semiannually for 7.5 years. Find the amount of interest earned.
 11. According to a financial web site, Bank A paid 6.9% interest compounded quarterly on a one year CD, and Bank B paid 6.88% compounded monthly. What are the effective rates for the two CDs and which bank pays a higher effective rate?
 12. Each year a firm must set aside enough funds to provide employee retirement benefits of \$52,000 in 20 years. If the firm can invest money at 7.5% compounded monthly, what amount must be invested at the end of each month for this purpose?
 13. In 3 years, Mary must pay a pledge of \$7500 to her favorite charity. What lump sum can she deposit today, at 10% compounded semiannually, so that she will have enough to pay the pledge?
 14. Scott Silva borrowed \$5200 from his friend Joe to buy computer equipment. He repaid the loan 10 months later with simple interest at 7%. Joe then invested the proceeds in a five year certificate paying 6.3% compounded quarterly. how much money will he have after 5 years?