

JANUARY 24, 2012

NOTHING TO CORRECT TODAY GET OUT YOUR NOTES

1/24 - Compound Interest

Compounded **yearly** means 1 time(s) every year

Compounded **monthly** means 12 time(s) every year

Compounded **bi-monthly** means 6 time(s) every year

Compounded **semi-monthly** means 24 time(s) every year

Compounded **weekly** means 52 time(s) every year

Compounded **bi-weekly** means 26 time(s) every year

Compounded **quarterly** means 4 time(s) every year

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

A = Annual Amount

P = principal deposited

r = rate (as a decimal)

n = Number of times compounded yearly

t = time \rightarrow # of years

If you deposit \$2000 into an account that earns 5% interest, compounded monthly, how much money will you have after 8 years?

12n

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

$$A = 2000 \left(1 + \frac{.05}{12}\right)^{12 \cdot 8}$$

$$A = 2000 (1 + .0042)^{96}$$

$$A = 2000 (1.0042)^{96}$$

$$A = 2000 (1.4953)$$

$$A = 2990.6861$$

$$2990.6$$

$$\boxed{\$2990.69}$$

If you deposit \$2000 into an account that earns 5% interest, compounded weekly, how much money will you have after 8 years?

$$A = 2000 \left(1 + \frac{.05}{52}\right)^{52 \cdot 8}$$

$$= 2000 (1.00096)^{416}$$

$$= 2000 (1.4906)$$

$$= \boxed{\$2981.17}$$

How much money do you need to deposit into an account that earns 7.5%, compounded quarterly, in order to have \$5000 after 10 years?

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

$$5000 = P \left(1 + \frac{.075}{4} \right)^{4 \cdot 10}$$

$$5000 = P (1.01875)^{40}$$

$$5000 = P (2.1023)$$

$$\frac{5000}{2.1023} = P$$

$$\$2378.29 = P$$

HOMEWORK

COMPOUND INTEREST WORKSHEET

#1-12 ALL

DUE Thursday