Mar. 8, 2017

Sect. 5-6

Financial Formulas

Compound Interest

1. Regular Interval

$$S = P\left[1 + \frac{r}{n}\right]^{nt}$$

2. Compounded Continuously

$$S = Pe^{rt}$$

$1000 @ 7% comp. monthly for 5 years. How much?

$$S = P\left[1 + \frac{r}{n}\right]^{nt}$$

$$= 1000\left[1 + \frac{.07}{12}\right]^{12(5)}$$

$$S = \$1417.63$$

\$1000 @ 8% comp. cont.
for 10 years.

$$S = Pe^{rt}$$

$$= 1000e^{.08(10)}$$

$$S = \$2225.54$$

Annuity

Regular Contributions

Future Value

Regular Distributions

Present Value

Future Value

$$S = R\left[\frac{\left(1+\frac{r}{n}\right)^{nt}-1}{\frac{r}{n}}\right]$$

Put $250 in each month
@ 7% comp. monthly for 20 yrs.

$$S = 250\left[\frac{\left(1+\frac{.07}{12}\right)^{12(20)}-1}{\frac{.07}{12}}\right]$$

$$S = \$130,231.67$$

Present Value

$$A = R\left[\frac{1-\left(1+\frac{r}{n}\right)^{-nt}}{\frac{r}{n}}\right]$$

Want to take out $750 each month. Getting 8% comp. monthy. For 20 years.

$$A = 750\left[\frac{1-\left(1+\frac{.08}{12}\right)^{-12(20)}}{\frac{.08}{12}}\right]$$

$$A = \$89,665.72$$

Mortgage

$$R = A\left[\frac{\frac{r}{n}}{1-\left(1+\frac{r}{n}\right)^{-nt}}\right]$$

$200000 @ 5% comp. monthly
make monthly pymts for 30 yrs.

$$R = 200000\left[\frac{\frac{.05}{12}}{1-\left(1+\frac{.05}{12}\right)^{-12(30)}}\right]$$

$$R = \$1073.64$$