

Compound Interest Formula

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

where $i = \frac{r}{N}$

A → amount earned (\$)
 P → principal (\$)
 i → interest rate per period (%)
 r → annual rate of interest (%/a)
 N → number of interest payments per year (4 possible values)
 n → total number of interest periods

Interest can be compounded:

annually → once per year, every year $N=1$

semi-annually → twice a year, every six months $N=2$

quarterly → four times a year, every three months $N=4$

monthly → twelve times a year, every month $N=12$

Original
 $I = Prt$

$i = \frac{r}{N}$

1a) 12% / a compounded - Semi-annually for 5a

$$N = 2$$

$$n = 5 \text{ years} \times 2$$

= 10 interest periods.

$$i = \frac{r}{N} = \frac{12}{2} = 6\% = 0.06.$$

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