

Day 3: Compound Interest...Again?!

Investments can be compounded for different periods - not always annually.

Compounding Periods	# Times per Year Compounded
Annually	1
Semi-annually	2
Monthly	12
Biweekly	26
Daily	365

**Note: These different compounding periods have an effect on our formula for compound interest.

n - number of compounding periods
(# years x # times compounded per year)

i - Interest rate per period
(Interest rate per year divided by # times compounded per year)

$$A = P \left(1 + \frac{i}{n} \right)^{n \times t}$$

n → compounding periods.

Example 1:

Erin put \$3000 into an RRSP earning $8\frac{1}{4}\%$ compounded semi-annually for 6 years.
Determine the value of the RRSP after the 6 years.

$$A = 3000 \left(1 + \frac{0.0825}{2} \right)^{6 \times 2}$$

$$A = \$4872.83$$

Example 2:

Heather put \$6500 into a short term deposit.
 If she receives 5% interest compounded monthly,
 what is the accumulated amount of the deposit after 2 years?

$$A = 6500 \left(1 + \frac{0.05}{12} \right)^{2 \times 12}$$

$$\underline{\underline{\$7182.12}}$$

Example 3:

This is an example of present value.

How much should I invest now to obtain a certain amount after a given time.

Determine the present value of an investment that yields \$15000 after 18 years at $8\frac{3}{4}\%$ compounded quarterly.

$$15000 = P \left(1 + \frac{0.0875}{4} \right)^{18 \times 4}$$

$$15000 = P (1.021875)^{72}$$

$$\frac{15000}{(1.021875)^{72}} = P \quad \# \quad 3158.29$$

Pg. 24

4, 8, 10, 13, 15, 17