

Compound Interest Warm-Up # 2 (on the small handout)

1. Find i , the interest rate per compounding period, and n , the number of compounding periods for each:

a) 4% per year for 7 years,
compounded semi-annually

$$i = \frac{0.04}{2}$$

$$n = 7 \times 2 \\ = 14$$

b) 6% per year for 5 years,
compounded monthly

$$i = \frac{0.06}{12}$$

$$n = 5 \times 12 \\ = 60$$

c) 8% per year for 3 years,
compounded quarterly

$$i = \frac{0.08}{4}$$

$$n = 3 \times 4 \\ = 12$$

2. Calculate the amount of a \$1000 investment that was invested at 6% per year, compounded semi-annually for 2 years.

$$A = ?$$

$$P = 1000$$

$$i = \frac{0.06}{2}$$

$$n = 2 \times 2$$

$$= 4$$

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

$$= 1000 \left(1 + \frac{0.06}{2}\right)^4$$

$$\approx 1125.508$$

$$\approx \$1125.51$$

\$1125.51

3. Solve for P.

$$a) \quad 15 = P \left(\frac{2}{2}\right)$$

$$7.5 = P$$

$$a) \quad P = 7.5$$

$$b) \quad 15 = P \left(\frac{2}{2}\right)^3$$

$$\frac{15}{2^3} = P$$

$$1.875 = P$$

$$b) \quad P = 1.875$$

Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) calculate the present value of an investment.

This means we want to calculate how much money we need now, (the present value), if we know how much we want/need at the end (the future value).

MBF 3CI

Present Value



Date: _____

We will still use the formula:

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

A is the final amount

P is the principal (original amount)

n is the number compounding periods

i is the interest rate per compounding period

It is sometimes written with different variables:

$$FV = PV(1+i)^n$$

FV is the Future Value

(the final amount you will owe, or receive)

PV is the Present Value

(the money invested or borrowed NOW)

n is the number compounding periods

i is the interest rate per compounding period

Ex.1 Abi and Niera plan to invest some money on the birth of their daughter, so that there will be \$10 000 on her 16th birthday. They will invest their money at 8%/a, compounded semi-annually.

- a) How much do they need to invest today? b) How much interest will their investment earn?

$$A = 10000$$

$$P = ?$$

$$i = \frac{0.08}{2}$$

$$n = 16 \times 2 = 32$$

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

$$10000 = P \left(1 + \frac{0.08}{2}\right)^{32}$$

$$\frac{10000}{\left(1 + \frac{0.08}{2}\right)^{32}} = P$$

$$P = 2850.579$$

$$I = A - P$$

$$= 10000 - 2850.58$$

$$= 7149.42$$

their investment earned
\$ 7149.42 in interest.

they need to invest \$ 2850.58 now,
to have \$10 000 on her 16th birthday.

a) \$2850.58 b) \$7149.42

In your notebook, complete:

Last Day's Work pp. 432-434 #2, 3, 6, 8, 12, 15, if it is not already complete.

Check your answers with the textbook answers as you work. Ask for help if they don't match.

Present Value: pp. 439-441 #2ab, 4, 6, 7, 9, 10, 13, 16a **(Be prepared for SWYK 8.1).**