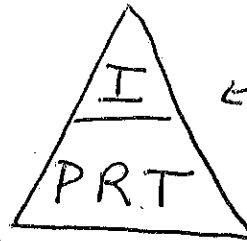


FMA12

Chapter 1:

1.1 Simple Interest:

→ interest on set amount
only 1x



← cover up
what you
want +
voila formula
is revealed.

1.2 Compound (Future Value)

→ interest many times
(interest + amount x interest)

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

P = \$ start (principal)
with

r = rate (in decimal)

n = # times compounded
in a year

daily = 365

monthly = 12

biweekly = 26

weekly = 52

semi-annually = 2

annually = 1

t = time in years

ex $P = 1500$

$$r = 2.3\% \Rightarrow 0.023$$

$$n = \text{weekly} \Rightarrow 52$$

$$t = 5 \text{ years}$$

$$A = 1500 \left(1 + \frac{0.023}{52}\right)^{52 \times 5}$$

$$= 1500 (1.00044)^{260}$$

$$= 1500 (1.12117)$$

$$= \$1681.76$$

$$\therefore I = 1681.76 - 1500 \\ = 181.76$$

1.3 Rule of 72

* use to estimate how long
it will take for \$ to double

$$\frac{72}{r\%}$$

ex $r = 3\% \Rightarrow \frac{72}{3} = 24 \text{ years to double}$

1.4 Compound (Present Value)

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

P = principal (present value)
 A = (future value)
 r = rate in decimal
 n = # times compounded in 1 year
 t = time in years

$A = \$3000$
 $r = 5\% \Rightarrow 0.05$
 $n = \text{daily} \Rightarrow 365$
 $t = 5 \text{ years}$

$$P = \frac{3000}{\left(1 + \frac{0.05}{365}\right)^{365 \times 5}}$$

$$= \frac{3000}{(1.00137)^{1825}} = \frac{3000}{1.284}$$

* must start w $P = \$2336.49$

1.5 * find r or t or n *

1.6 apply all 1.1 \rightarrow 1.5

Method 1:

Method 2

- use $A = P\left(1 + \frac{r}{n}\right)^{nt}$
- plug in what you know
- guess & check other value

- $y_1 = A$
- $y_2 = P\left(1 + \frac{r}{n}\right)^{nt}$
* use x for unknown term
- graph using calculator
- find intersection

$t = 3 \text{ year}$ $P = 1500$
 $A = 2000$ $n = \text{semi } \rangle 2$
 annually

$t = ?$ $P = 650$
 $A = 700$ $n = 12$
 $r = 4.8\%$

$r = ?$

$$2000 = 1500 \left(1 + \frac{r}{2}\right)^{2 \times 3}$$

guess

$$2000 = 1500 \left(1 + \frac{\square}{2}\right)^6$$

tried 2 = 1592.2 tried 10 \Rightarrow 2018 *

$$y_1 = 700$$

$$y_2 = 650 \left(1 + \frac{0.048}{12}\right)^{12 \times t}$$

INT = 1.026 yr = 1y and 10 days

\uparrow
x365

How to use a Spreadsheet

/ = divide

* = multiply

+ = add

- subtract

= ⇒ must start any equation

Cells are named letter number
(column) (row)

* use brackets () to ensure order of operations

example ⇒ you want to find your average % on a test.

	A	B	C	D	D
1	score	out of	%		
2	5	8	$=A2/B2*100$		
3	6	10	$=A3/B3*100$		
4	9	10	$=A4/B4*100$		
5	11	13	$=A5/B5*100$		
6	14	16	$=A6/B6*100$		
7	23	25	$=A7/B7*100$		
8		Average	$=Average(C2:C7)$		

- Average or Sum button appears when you type = on top left side

- to put in range of cells click, hold and highlight cells you want.

Excel assignment

- ① You take out a loan for a car, it is 0% interest for 4 years and the car cost \$9552. You could take the full 4 years & pay \$199/mo. but you want to pay it off sooner so you pay an extra \$50/month. When will you have paid off the loan. How many payments? (convert to years + months) What will your last payment be?

headings

loan	payment	balance

- ② Change your spreadsheet to include interest of 2% per year.

loan	interest	payment	balance

* assume interest is added before payment

$$* 2\% / \text{year} = \frac{0.02}{12} = 0.0017\% / \text{month}$$