

## Quantitative concept summary strategy

Taken from: Fleet, J., Goodchild, F. and Zajchowski, R., "Learning for Success", 2006

See Camosun College faculty member Zack Zajchowski's [Resources](#) web page for several completed examples.

### Purpose

To provide a structure for organizing fundamental, general ideas. The mental work involved in constructing the summary helps clarify the basic ideas and shift the information from working memory to long-term memory. This is an excellent study tool, for quick review.

### Method

The organizational elements are

#### i. Concept Title

You can identify key ideas by referring to the course outline, chapter headings in the text, lecture outline. Sometimes concepts are thought of individually, other times they are meaningfully grouped for better recall. Eg. Depreciation, Capital Cost Allowance, and Half-Year Rule; acid, base and PH.

#### i. Use **general categories** to organize material, and then add specific details as appropriate. Sample general categories may include:

- Allowable key formula- check summary page of text or ask professor
- Definitions- define every term, unit and symbol
- Additional important information- sign conventions, reference values, meaning of zero values, situations in which formula do not work, etc
- Simple examples or explanations- use your own words, diagrams, or analogies to deepen your thinking and check your understanding
- List of relevant knowns and unknowns- to help you know which concepts are associated with which problems, use crucial knowns to help distinguish among problems.

## **Quantitative concept summary**

**Concept Title:**

**Allowable Key Formula:**

**Definitions of each symbol, and its units:**

**Additional important information: (e.g. sign conventions, special characteristics, when concept doesn't work, special cases, etc.)**

**Simple examples, explanations, cases:**

**Relevant knowns, and unknowns: (and words/phrases from word problems that signal these)**

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## Example: Concept summary for Ordinary Simple Annuities

### Concept title: Ordinary Simple Annuities

1. Key allowable formula(s):

- Ordinary annuity → payment at **end** of each payment period
- Simple annuity → interest period = payment period

$$FV = \frac{PMT((1+i)^n - 1)}{i} \quad PV = \frac{PMT(1 - (1+i)^{-n})}{i}$$

PMT = ... (see formula sheet)

n = ... " "

2. Definition of each new symbol and its units:

- PV is the present value of the annuity in \$
- FV is the future value of the annuity in \$
- PMT is the regular payment per period in \$
- n is the number of payments made
- I is the interest rate per payment period

3. Additional important information: (sign conventions, special characteristics, reference & zero values, when concept does not work, special cases, etc.)

- In problems check interest period – payment period & that payment is at the end of the period; otherwise, formulas need changing!
- Be careful to find “i” **per period**
- Watch signs on “n” value ! FV>PV and PMT is small in comparison
- You **cannot** find “i” with formulas → a calculator is needed
- Otherwise you can find any of the 4 symbols above if you know 3 others (e.g. find FV knowing PMT, i, n).

4. Simple examples of explanations:

These formulas can “compress” an annuity into a value – either PV or FV. Mortgage is a simple example: I am loaned some money (PV) to buy a house. I pay “PMT” per month at i% for n payments (usually 25 years, and n = 300). Then I can find FV and I end up paying (knowing) PV, i, n, and I can find PMT.

5. Relevant knowns and unknowns: (words or phrases from word problems that signal these)

- To be an annuity, problem must say “annuity” or “series of payments” or “regular payments”, etc.
- To be an ordinary or a simple annuity, you need to check “pay at the end of the month or quarter”, etc. and that the pay period is the same as the interest period.
- PV is often “loan of...”; “price of...”
- FV is often “accumulates to ...” or “how much after...”