COURSECODE Cheatsheet

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Contents

List of Figures

List of Tables

1 Week 1

Terminology: **Interest Rate**

1. P: Principle amount
2. F: Future amount
3. F_N : Future amount in (time unit) N
4. N: Number of periods (e.g. years)
5. i: Interest rate
6. I: Total interest amount
7. r Nominal interest rate (usually for 1 year)
8. m: Number of times compounded (subperiods) per year

9. i_s: Subperiod interest rate
10. i_e: Effective interest rate, the equivalent rate if compounded only once per year.

Definition: **Interest Rate**

$$i = \frac{I}{P} \tag{1}$$

Definition: **Subperiod Interest Rate**

$$i_s = \frac{r}{m} \tag{2}$$

Definition: **Effective Interest Rate**

$$i_e = (1 + i_s)^m - 1 \tag{3}$$

Definition: **Simple Interest**

$$F_N = P(1 + Ni) \tag{4}$$

Definition: **Compound Interest**

$$F_N = P(1 + i)^N \tag{5}$$

Definition: **Compound Interest with Subperiods**

$$F_N = P(1 + i_s)^{Nm} \tag{6}$$

Definition: **Continuous Compound Interest** The finite amount of i_e as the compounding period becomes infinitesimally small.

$$i_e = \lim_{m \to \infty} (1 + \frac{r}{m})^m - 1 = e^r - 1 \tag{7}$$

Note: i_e increases as the compounding period decreases.

2 Week 2

3 Week 3

4 Week 4

5 Week 5

6 Week 6

7 Week 7

8 Week 8

9 Week 9

10 Week 10

11 Week 11

12 Week 12

13 Week 13

Process:
1.
2.
3.
4.

Example: Hanhee Lee

Definition:

Theorem: Hanhee Lee

Derivation: Hanhee Lee

Intuition: Hanhee Lee

Warning: Hanhee Lee

Terminology: Hanhee Lee

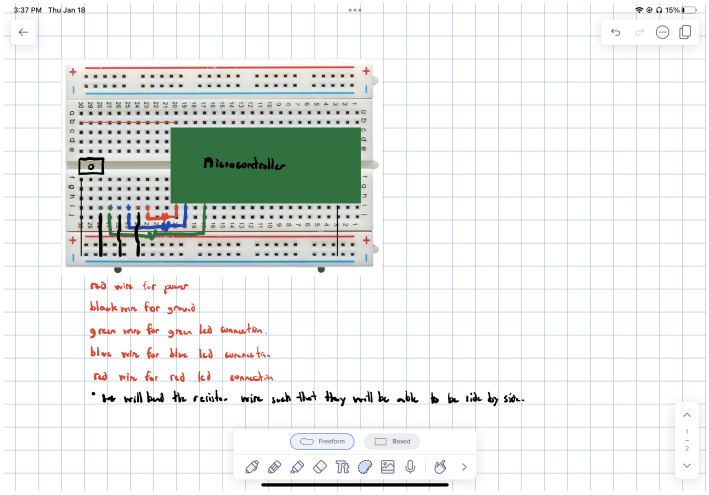

Figure 1: ESC195