HM321 Engineering Economics Fall 2024 – Lecture 3

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Bring Calculator Always

- Always bring your calculator with you in lectures
- Without practice you will not be able to do the calculations in your exams
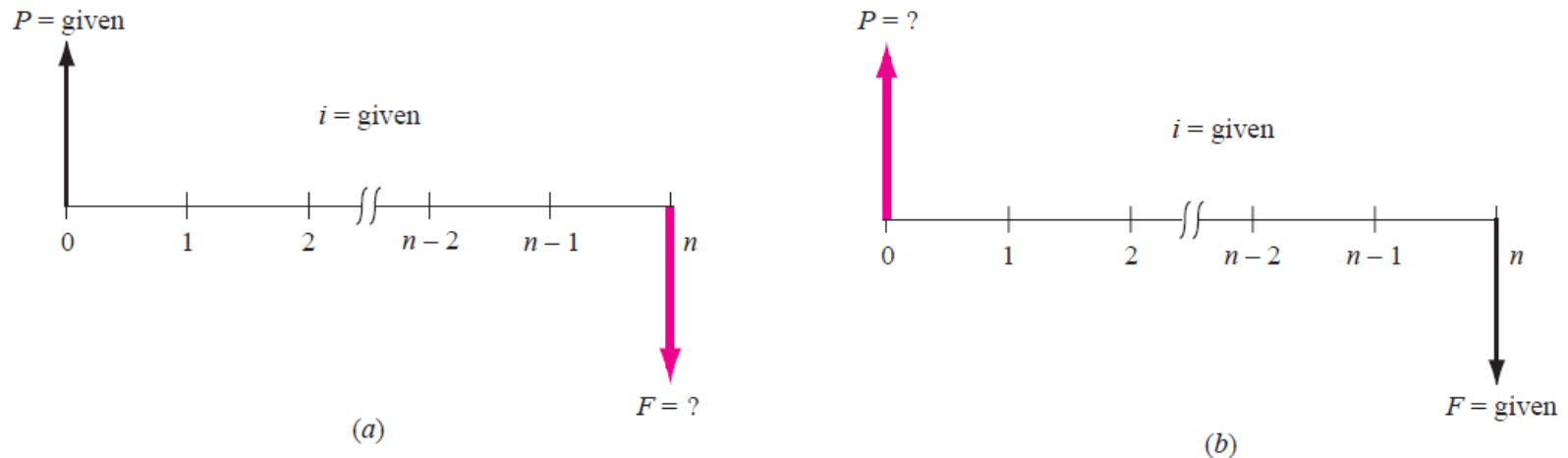
Single Payment Factors: *P/F* and *F/P*

- Single payment factors involve *P* and *F*
  - Both *P* and *F* are <u>single payments</u>
- The following relations hold between *P* and *F* where *i* = rate of interest and *n* = number of interest periods

$$\frac{F}{P} = (1+i)^n \quad \text{and} \quad \frac{P}{F} = \frac{1}{(1+i)^n}$$

Use of F/P and P/F Factors

- In standard factor notation these are represented as (F/P, i, n) and (P/F, i, n) respectively

- To find F when P is given, F/P factor is used
  - This is called compounding
  - F is called compound amount

- To find P when F is given, P/F factor is used
  - This is called discounting
  - P is called present worth

Cash Flow Diagrams for Single Payment Factors

FIGURE 2.1 Cash flow diagrams for single-payment factors: (a) find F and (b) find P.

$$F = P(F/P, i, n)$$

$$P = F(P/F, i. n)$$

Tables of Factors

- See Tables 1 to 26 near the end of textbook
  - Each table is for a given interest rate (i) shown on the top of each table
  - Rows in each table give the values of factors for various interest periods (n)
- In old times when electronic computing was not available, such tables were laboriously calculated and were used in calculations

Read Examples

- Study Table 2.1 in B&T
- Read examples 2.1, 2.2 and 2.3 in B&T

- Numerical problems at the end of Chapter 2 were solved

Reference

- Basics of Engineering Economy by Leland Blank and Anthony Tarquin, 2nd edition, McGraw-Hill