Solved Exercises :- Chapter 3

- What is the balance in an account at the end of 10 years (N) if 2500$ (P) is deposited today and the account earns 4% (i) interest

We need to Find F:-

$$F = P(F/P, i, N)$$
$$= 2500\,(F/P, 4\%, 10)$$
$$= 2500\,(1.48) = 3700\,\$$$

- Suppose you deposit 100 000$ (P) in an account today that pays 6% (i) interest, Compounded annually. How long does it take before the balance in your account is 500,000$ (F)?

We need to find N:-

$$F = P(F/P, i, N)$$
$$500{,}000 = 100\,000\,(F/P, 6\%, N)$$
$$5 = (F/P, 6\%, N)$$

From the table:-

$N \simeq 28$ years

Simple interest

Assume that you deposit 1000 $ in an account earning 7% simple interest for 2 years. What is the accumulated interest at the end of second year

$$SI = (P_0)(I)(N)$$
$$= (1000)(0.07)(2) = 140\$$$

- How long does it take to double (F) 5,000 $ (P) at a compound rate of 12% (i) per year?

$$F = 2 \times 5{,}000 = 10000$$

$$10{,}000 = 5000\,(F/P, i, N)$$
$$2 = (F/P, 12, N) \quad \text{from tables}$$
$$N \simeq 7 \text{ years} \quad (\text{accurately } 6.12)$$

Solved Exercises Chapter 4

- At present, an equipement costs 25,000$ (P) to install The productivity attributed by the equipement is 8000$ (R-D) each year for 5 (N) yeares, In the end of the 5th year it will have a salvage ~~year~~ value of 5000$ F. MARR = 20%
Is this equipement worthy?

$$P.W = -P + (R-D)(P/A, i, N) + F(P/F, i, N)$$
$$= -25000 + 8000(P/A, 20\%, 5) + 5000(P/F, 20\%, 5$$
$$= \$\ 934.29$$

it is Justified!

- A real estate acency decicles to build a 25 unit apartement Complex for renting.
The Costs are:-

Land	50,000$
Building	225,000$
Nr of years	20
Maintenance	$35/p.m
Tax.	10% of investement
Occupancy	90%
MARR	12%

Using Annual Worth Method:-

$$N.A.W = 0 = -R + -D - CR - Taxes$$

✓ $P = 50000 + 225000 = 275\,000$

✓ $R = (Rent)^2 (12)(25)(90\%)$

✓ $D = (35)(25)(12)(90\%) = 9450$

✓ $Taxes = (0.1)(275,000) = \$27500$

$$N.AW = (Rent)(270) - 9450\$ - 275\,000(A/P, i\%, 20) - 50000\$(A/F, i\%, 20) - 27500 = 0$$

$Rent = \$270.64$