

SES'S L.S.RAHEJA COLLEGE OF ARTS AND COMMERCE

Course: Business Mathematics

Unit: I,II AND III SEM II

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1. monthly income of A and B are in the ratio 7: 4 and their expenditures are in the ratio 9:5. Each of them saves Rs 10000. Find their income.

Expenditure = income – savings

Let their monthly income ratio be 7x:4x.

So, their expenditure is in ratio

$$\frac{9}{5} = \frac{7x-10000}{4x-10000}$$

So, x = Rs 40000

So monthly income of = A and B are Rs 280000 (7x = 7*40000) and Rs 160000 (4x = 4*40000)

2. A del credere agent charged 3 % commission on cash sales and 5 % commission on credit sales. In June 2019, his average commission was 4.5 % on sales. Find the ratio of his cash sales to his credit sales.

Let x = cash sales

Y = credit sales

Commission on cash sales = 0.03x

Commission on credit sales = 0.05y

Total commission = 0.045(x+y)

Total commission = commission on cash sales + commission on credit sales

$$0.045x+0.045y = 0.03x+0.05y$$

$$\text{So } \frac{x}{y} = \frac{1}{3}$$

3. A del credere agent charged 5% commission on cash sales and 8 % commission on credit sales. In June 2019, his average commission was 6 % on sales. Find the ratio of his cash sales to his credit sales. (assignment)

4. The simple and compound interest on a sum of money at a certain rate for 2 years is Rs 8000 and Rs 8200 respectively. Find the sum and the rate.

Simple Interest = p *n*i

$$8000 = P \cdot 2 \cdot i$$

$$4000 = pi$$

$$\text{Compound interest} = P((1+i)^n - 1)$$

$$8200 = P((1+i)^2 - 1)$$

$$\frac{\text{compounding interest}}{\text{simple interest}} = \frac{8200}{4000} = \frac{P((1+i)^2 - 1)}{Pi}$$

$$I = 0.05$$

$$4000 = p \cdot 0.05$$

$$P = 80000 \text{ Rs}$$

5. The simple and compound interest on a sum of money at a certain rate for 2 years is Rs 1260 and Rs 1323 respectively. Find the sum and the rate. (Assignment)

6. Find the present value of an immediate annuity of Rs 20000 each month for 3 months at 12% p.a. compounded monthly.

$$I = 12/12 = 1\%$$

$$P = \frac{C}{i} (1 - (1+i)^{-n})$$

$$= \frac{20000}{0.01} (1 - (1+0.01)^{-3})$$

$$= 2000000$$

$$= 58819 \text{ Rs}$$

Answers of Assignment in Tutorial lesson 1

1. A person sold 2 necklaces for Rs 990 each and thus earned a 10% profit on one and incurred a 10% loss on the other. Find total percentage profit or loss. (1% loss)
2. A and B are partners sharing profit in the ratio 4: 5. they admit C, giving him $\frac{1}{10}$ th share in the total profit. In what ratio will A, B and C share the total profit? (A's share = $\frac{2}{5}$ th, B' s share = $\frac{1}{2}$ th and the ratio of A: B: C is 4:5:1)
3. A, B and C invested Rs 70000, and Rs 50000 and Rs 80000 respectively in a business. At the end of the year, C received Rs 16000 as his share in the profit. Find the total profit. Also find B's and A's share of profit. (total profit = Rs 40000, A's share = Rs 14000, B's share = Rs 10000)
4. A firm allows a trade discount of 25% on the list price and further discount of 4% on cash payment. Find the cost price of an item, which is marked at rupees 830/-and is sold with a profit, at the rate of 19.52%. (c.p. = Rs 500)