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

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 = \(p \times n \times i\)
\[ 8000 = P \times 2 \times i \]

\[ 4000 = pi \]

Compound interest = \( P((1+i)^n - 1) \)

\[ 8200 = P((1+i)^2 - 1) \]

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

\[ I = 0.05 \]

\[ 4000 = p \times 0.05 \]

\[ P = 80000 \text{ Rs} \]

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 2000 each month for 3 months at 1\% p.a. compounded monthly.

\[ I = \frac{12}{12} = 1\% \]

\[ P = \frac{20000}{0.01} (1-(1+0.01)^{-3}) \]

\[ = 2000000 \]

\[ = 58819 \text{ Rs} \]

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 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)