EXERCISE 1

1. (e) Ratio of the capital of Rinku and Pooja

\[
\frac{5100}{6600} = \frac{51}{66} = \frac{17}{22}
\]

\[\therefore \text{Rinku's share} = \frac{2730 \times 17}{17 + 22} = \text{Rs.} 1190\]

2. (c) Ratio of equivalent capitals of A, B and C for 1 month

\[
\frac{35000 \times 12}{20000 \times 5} : \frac{15000 \times 7}{15 \times 7} = \frac{35 \times 12}{20 \times 5} : \frac{15 \times 7}{7} = \frac{84}{20} : 21
\]

Sum of the ratios = 84 + 20 + 21 = 125

\[\therefore \text{B's share} = \text{Rs.} \left( \frac{20}{125} \times 84125 \right) = \text{Rs.} 13460\]

3. (b) Ratio of profit = 1 × 12 : 2 × 6 : 3 × 4

\[= 1 : 1 : 1\]

\[\therefore \text{Manav's share} = \text{Rs.} 45000 \cdot \frac{1}{3} = \text{Rs.} 15000\]

4. (d) Ratio of capital

\[
\frac{50000 \times 12}{80000 \times 6} = \frac{5}{4}
\]

\[\therefore \text{Sarita's share} = \frac{18000 \times 5}{(5 + 4)} = \text{Rs.} 10000\]

5. (e) Ratio of profit = 60000 × 12 : 100000 × 6 = 6 : 5

\[\therefore \text{Shirish's share} = \frac{151800 \times 5}{(6 + 5)} = \text{Rs.} 69000\]

6. (b) Ratio of rent amount

\[= 27 \times 19 : 21 \times 17 : 24 \times 23 = 513 : 357 : 552\]

\[\therefore \text{Rent paid by C} = \frac{184}{474} \times 23,700 = \text{Rs.} 9,200\]

7. (d) Required ratio of profit distribution

\[= 2000 \times 9 : 5000 \times 7 = 18 : 35\]

8. (c) Ratio of their investment = 380 : 400 : 420

\[= 19 : 20 : 21\]

\[\therefore \text{A's profit} = \text{Rs.} \left( \frac{19}{60} \times 180 \right) = \text{Rs.} 57\]

\[\text{B's profit} = \text{Rs.} \left( \frac{20}{60} \times 180 \right) = \text{Rs.} 60\]

\[\text{C's profit} = \text{Rs.} \left( \frac{21}{60} \times 180 \right) = \text{Rs.} 63\]

9. (a) Ratio of their profits (Radha’s : Sunidhi’s : Neha’s)

\[= 75 \times 36 : 125 \times 33 : 150 \times 27 = 3 \times 36 : 5 \times 33 : 6 \times 27 = 36 : 55 : 54\]

10. (a) Sum invested by A, B and C is

\[\frac{5 \times 12}{7 \times 6 + 3 \times 6} = \frac{5}{10} : \frac{4}{5} \text{ or, } 60 : 84 : 54 \text{ or, } 10 : 14 : 9\]

\[\therefore \text{Share of C} = \frac{9}{33} \times 33,000 = \text{Rs.} 9,000\]

11. (c) Ratio of their investment

\[= 50000 \times 12 : 90000 \times 8 = 5 : 6\]

\[\therefore \text{Amount received by Praveen} = \frac{6}{11} \times 22,000 = \text{Rs.} 12,000\]

12. (c) Ratio of their investments

\[= 70 \times 36 : 105 \times 30 : 140 \times 24 = 12 : 15 : 16\]

13. (a) Let the initial investments of Hariprasad and Madhusudan be 2x and 3x, respectively.

From the question,

\[
\frac{2x}{3x} = \frac{10000}{3} \text{ or } \frac{3}{2}
\]
or, \[4x + 20000 = 9x\]

\[
\therefore x = 4000
\]

\[
\therefore \text{Amount invested by Hariprasad} = 2x = 8000
\]

14. (b) \[
\text{Ratio of their investments} = \frac{25000 \times 1 + 35000 \times 1}{45000 \times 1 + 35000 \times 1} = \frac{3 : 2}{3 : 2} = 3 : 2 : 1.
\]

\[
\therefore \text{Rakesh's share} = \frac{2}{6} \times 150000 = 50000
\]

15. (e) \[
\text{Ratio of Abhishek and Sudin for one month} = \frac{(50000 \times 12) + (30000 \times 24)}{(70000 \times 24)} = \frac{180000 + 720000}{1680000} = 3 : 2
\]

\[
\therefore \text{Hence share of Sudin in the profit earned from the business}.
\]

\[
= \frac{87500}{3+2} \times 2 = 35000.
\]

16. (b) \[
\text{Ratio for amount invested by } P, Q \& R = \frac{5x \times 1}{6x \times 6} : \frac{6x \times 1}{6x \times 6} : \frac{6x \times 1}{6x \times 6}
\]

\[
= 5x : 6x : 6x
\]

\[
\therefore \text{Profit} = 98000 = 20\% \text{ of } T
\]

where, \(T = \text{Total amount} = 490000\)

\[
\text{Amount received by}
\]

\[
R = \frac{3x}{6x} \times \frac{1}{5x} \times 490000 = 105000
\]

EXERCISE 2

1. (b) \[
\text{Ratio of distribution of profit} = \text{Ratio of their investments}
\]

\[
\Rightarrow \frac{2}{3} = \frac{40}{B}
\]

or \(2B = 120\) or \(B = 60\)

2. (b) \[
\text{Ratio of investment} = 3500 : 4500 : 5500 = 35 : 45 : 55 = 7 : 9 : 11
\]

Since, Ratio of investment is same as ratio of profit.

\[
\therefore \text{Ratio of profit} = 7 : 9 : 11
\]

Now, profit \(= 405\)

\[
\therefore \text{A's share} = \frac{7}{27} \times 405 = \text{Rs 105}
\]

3. (b) Let the amount invested by B = \(x\)

\[
\text{As we know, Ratio of profit} = \text{ratio of investments}
\]

Given, Ratio of profit = \(2 : 3\)

\[
\Rightarrow \frac{2}{3} = \frac{40}{x}
\]

\[
\Rightarrow x = 60
\]

4. (a) Let B joined after \(x\) months.

\[
\text{Then, } 4500 \times 12 : 3000(12 - x) = 2 : 1
\]

\[
\text{Ratio of their investments} = \frac{4500 \times 12}{3000(12 - x)} = \frac{2}{1}
\]

\[
\Rightarrow x = 3
\]

5. (b) According to the given information

\[
\Rightarrow \frac{50000 \times 12}{60000 \times (12 - x)} = \frac{20}{18}
\]

\[
\Rightarrow \frac{50000 \times 12 \times 18}{60000 \times 20} = 12 - x
\]

\[
\therefore x = 3 \text{ months}
\]

6. (a) Let Sanjay invest \(x\) in the business.

Since, at the end of the year Rahul and Sanjay both get equal amount as profit

\[
\text{Then, } \frac{8000 \times 12}{x \times 6} = \frac{1}{1}
\]

\[
\therefore x = 16,000
\]

7. (c) \[
\text{Total profit} = 337.50 + 1125.00 + 675 = 2137.50
\]

\[
\text{Percentage profit} = \frac{2137.50 \times 100}{114000} = 1.8\%
\]

8. (d) \[
\text{Ratio of capital investment} = \frac{9000 \times 12 : (12000 \times 6) + (6000 \times 6)}{1 : 1}
\]

\[
\therefore \text{Kapil's share} = \frac{1}{2} \times 4600 = \text{Rs 2,300}
\]
9. (b) If C puts in ₹ x, then B puts in ₹ x + 500 and A puts in (x + 500) + 700 i.e. x + 1200
⇒ (x + 1200) + (x + 500) + x = 4700
⇒ 3x + 1700 = 4700 ⇒ x = 1000
Ratio of their investment 2200 : 1500 : 1000 = 22 : 15 : 10
Thus, share of

B 15
22 4230 Rs.1350

10. (c) Let the total profit be ₹ z. Then,

B’s share = \( \frac{2z}{3} \), A’s share = \( z - \frac{2z}{3} = \frac{z}{3} \).

A : B = \( \frac{z}{3} : \frac{2z}{3} = 1 : 2 \).

Let the total capital be ₹ x and suppose B’s money was used for y months. Then,

\[
\frac{1}{4} \times \frac{15}{3} = \frac{1}{2} \Rightarrow y = \left( \frac{15 \times 2}{3} \right) = 10.
\]
Thus, B’s money was used for 10 months.

11. (c) Let B’s capital is x and C’s capital is y.

\[ \therefore A's profit = 200 = \frac{4000}{4000 + x + y} \times 800 \quad \ldots (i) \]
and C’s profit = 100 = \( \frac{y}{4000 + x + y} \times 800 \quad \ldots (ii) \)

(i)+(ii) ⇒ 2 = \( \frac{4000}{y} \) ⇒ y = Rs 2000

\[ \therefore x = \text{₹} 10,000 \]

12. (a) Let B join after x months of the start of the business so that B’s money is invested for (12 – x) months.

\[ \therefore \text{Profit ratio is } 12 \times 12500 : (12 - x) \times 37500 \]
or \[ 12 : 3(12 - x) \]
Since profit is equally divided. therefore
12 = 3(12 – x) or x = 8. Thus B joined after 8 months.

13. (c) Let B join after ‘x’ month of the start of the business.
⇒ (45,000 × 12) : 54,000 × (12 – x) = 2 : 1
∴ (45,000 × 12) × 1 = 54,000 × (12 – x) × 2
⇒ x = 7
Thus B joined after 7 months.

14. (d) Let B puts in x cows

Then amount paid by B = \( \frac{3}{2} \times \text{amount paid by A} \).

15. (c) Let the total investment be ₹ x.

Then, 20% of x = 98000
⇒ x = \( \left( \frac{98000 \times 100}{20} \right) = 490000 \).

Let the capitals of P, Q and R be ₹ 5x, ₹ 6x and ₹ 6x respectively. Then,

(5x × 12) + (6x × 12) + (6x × 6) = 490000 × 12

⇒ 168x = 490000 × 12 ⇒ x = \( \frac{490000 \times 12}{168} \) = 35000.

∴ R’s investment = 6x = ₹ (6 × 35000) = ₹ 210000.

**EXERCISE 3**

1. (a) Remaining capital = 1 – \( \frac{1}{6} + \frac{1}{3} \) = \( \frac{1}{2} \)

Ratio of their profit
\[ = \frac{1}{6} \times \frac{1}{6} \times 12 : \frac{1}{3} \times \frac{1}{3} \times 12 : \frac{1}{2} \times 12 \]

1. $A's\ share = \frac{1}{1+4+18} \times 2300 = Rs\ 100$

2. (b) Ratio of the capitals of A, B and C

\[
\begin{align*}
&= 20000 \times 5 + 15000 \times 7 : 20000 \times 5 + 16000 \times 7 \\
\end{align*}
\]

B’s share = \(\frac{212}{699} \times 69900 = Rs\ 21,200\)

3. (b) The amount A gets for managing the business

\[12.5\% \text{ of } Rs\ 8800 = Rs\ 1100\]

Remaining profit = \(Rs\ 8800 - Rs\ 1100 = Rs\ 7700\)

This is to be divided in the ratio 5 : 6.

A’s share

\[\frac{5}{6} \times 7700 = Rs\ 3500\]

\(\Rightarrow\) Total share of A = \(Rs\ 3500 + Rs\ 1100 = Rs\ 4600\).

4. (a) Initially A’s investment = 3x and B’s investment = 4x.

Let B remain in the business for ‘n’ months.

\[3x \times 10 : 4x \times n = 5 : 6\]

\(\therefore\) \(3x \times 10 \times 6 = 4x \times n \times 5 \Rightarrow n = 9\)

Hence, B remained for 9 months in the business.

5. (b) In a year, for A, total amount as a remuneration

\[10 \times 12 = Rs\ 120\]

\(\therefore\) Amount of A’s profit = \(390 - 120 = Rs\ 270\)

Ratio of investment = 3 : 4

Let total profit be \(Rs\ x\)

Then, B’s profit = \(Rs\ (x - 270)\)

\[\therefore\] A’s share = \(\frac{3}{4} \times 270 = \frac{3x}{7} \times 630\)

\[\therefore\] B’s profit = \(630 - 270 = Rs\ 360\)

6. (a) Let B joined after x months.

Then, \(4500 \times 12 : 3000 \times (12 - x) = 2 : 1\)

\[\frac{4500}{3000} \times \frac{12}{(12 - x)} = \frac{2}{1} \Rightarrow x = 3\]

Thus, B joined after 3 months.

7. (b) Let A’s capital be \(Rs\ 4x\) and B’s capital be \(Rs\ 5x\)

\[\therefore\] Ratio of profit

8. (c) Since, X’s capital = \(\frac{2}{5}\) of total

\[\therefore\] Y’s capital = \(1 - \frac{2}{5} = \frac{3}{5}\) of total

Let Y invested capital for \(t\) years.

\[\therefore\] Ratio of profit = \(\frac{2\times\frac{2}{3}}{\frac{3}{5}}\times t\)

\[\frac{4}{15} = \frac{4}{3} \Rightarrow t = \frac{1}{3}\text{ year.}\]

9. (a) For first year, ratio of profit = 3 : 4

X’s profit of first year = \(\frac{3}{7} \times 2100 = Rs\ 900\)

Now, for second year,

\[\text{Ratio of profit } = 3000 \times 12 + 900 \times 12 : 4000 \times 12 = 46800 : 48000 = 39 : 40\]

\[\Rightarrow 4x \times 3 + \frac{3}{4} (4x) \times 7 : 5x \times 3 + \frac{4}{5} (5x) \times 7 = 33 : 43\]

\[\therefore\] Profit of B = \(\frac{43}{33+43} \times 760 = Rs\ 430\)