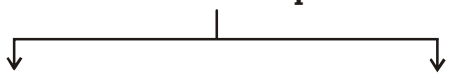
# PARTNERSHIP

♦ When two or more than two persons run a business together, then it is called partnership and the persons are called partners.

**Partnership**



Partnership
(1) Profit sharing Ratio

(2) Type of partners
(i) Sleeping
(ii) Active

(1). **Profit sharing Ratio** : The profit is shared between partners in the ratio of the product of money and the time duration.

**e.g.** A invests Rs. 12000 for 5 months and B invests Rs. 6000 for 10 months then the ratio of their profit

| **A** | | **B** |
|---|---|---|
| 12000 × 5 | | 6000×10 |
| 60 | : | 60 |
| 1 | : | 1 |

(2) **Type of Partners**

(i) **Sleeping Partner** : This type of partners put only money. So they only get the profit in the ratio of money invested.

(ii) **Active Partner** : This type of partners not only put their money but also run the business and they get extra profit for doing so according to conditions, and the remaining profit is shared in the ratio of their capital.

## Example

1. Rakesh Yadav and Bhuvnesh started a business by investing ` 36,000 and ` 63,000. Find the share of each, out of the annual profit of ` 5500.

(a) ` 2000, ` 3500
(b) ` 2500, ` 3500
(c) ` 3500, ` 2500
(d) None of these

**Sol. (a)**

| | Rakesh Yadav | : | Bhuvnesh |
|---|---|---|---|
| Capital → | 36,000 | : | 63,000 |
| | 4 | : | 7 |

**Note** → When time is same then profit will divided in the ratio of their capital.

∴ (4 + 7) units = ` 5500

11 units = ` 5500

1 unit = ` $\frac{5500}{11}$ = ` 500

Share of Rakesh Yadav
= 500 × 4 = ` 2000

Share of Bhuvnesh
= 500 × 7 = ` **3500**

2. A starts a business with ` 50,000. After 3 months B joins him with ` 70,000. At the end of the year, in what ratio should they share the profit ?

(a) 12 :13 (b) 13 : 12
(c) 11 : 15 (d) 20 : 21

**Sol. (d)**

| | A | : | B |
|---|---|---|---|
| Capital → | 50,000 | | 70,000 |
| | 5 | : | 7 |
| Time → | 12 | | 9 |
| Profit → | 60 | : | 63 |
| | 20 | : | 21 |

Required Ratio of Profits
= 20 : 21

3. Rakesh Yadav started a business by investing ` 36,000. After 4 months Bhuvnesh joined him with some investment. At the end of the year, the total profit was divided between them in the ratio 9 : 7 How much capital was invested by Bhuvnesh in the business?

(a) ` 40,000 (b) ` 42,000
(c) ` 41,000 (d) None of these

**Sol. (b)** Let the capital invested by Bhuvnesh be ` $x$

| | Rakesh Yadav | : | Bhuvnesh |
|---|---|---|---|
| Capital → | 36,000 | : | $x$ |
| Time → | 12 | : | 8 |
| | 3 | : | 2 |
| Profit → | 1,08,000 | : | $2x$ |

According to the question,

$\frac{1,0,8000}{2x} = \frac{9}{7}$

$x = \frac{108,000}{18} \times 7 = 42,000$

Required investment by Bhuvnesh = ` **42,000**

**Alternate:-**

**Note :-** To save your valuable time in such type of question try to use below given formula.

$\frac{C_1 \times T_1}{C_2 \times T_2} = \frac{P_1}{P_2}$

$C_2$ are the capi-

time periods.

profits.

invested by ` $x$

$$\frac{36000\times12}{x\times8}=\frac{9}{7}$$

$x$ = ` **42000**

4. A started some business with ` 26,000. After 3 months B joined him with ` 16,000. After some more time C joined them with ` 25,000. At the end of the year, out of the total profit of ` 15,453, C gets ` 3825 as his share. How many months after B joined the business, did C join?

(a) 3 (b) 4

(c) 5 (d) None of these

**Sol. (a)**

| | A | : | B | : | C |
|---|---|---|---|---|---|
| Capital ⟶ | 26000 | : | 16000 | : | 25000 |
| | 26 | : | 16 | : | 25 |
| Time ⟶ | 12 | : | 9 | : | T |
| Profit ⟶ | 312 | : | 144 | : | 25T |

According to the question,

$(312 + 144 + 25T)$ units = 15,453

$$1 \text{ unit} = \frac{15,453}{(456+25T)}$$

$$\text{Share of C} = \frac{15,453}{(456+25T)}\times 25T$$

$$= \frac{15,453}{(456+25T)}\times 25T = 3825$$

**Note:** Because C's share = ` 3825.

101T = 456 + 25T

76 T = 456

T = 6 months

Required time = (9 – 6) = 3 months

Therefore, C joined 3 months after B joined.

5. A, B and C started a business with their investments in the ratio 1 : 2 : 4. After 6 months A invested half the more amount as before and B invested the same amount as before while C withdrew $\frac{1}{4}$ th of the his investment. Find the ratio of their profits at the end of the year.

(a) 5 : 12 : 13 (b) 5 : 11 : 14

(c) 5 : 12 : 14 (d) None of these

**Sol. (c) Note:** We can assume values as per our need but the ratio of values should not be changed.

A : B : C

Initial capital ⟶ $2x : 4x : 8x$

Total capital invested by A

$= (2x \times 6 + 3x \times 6) = 30x$

Total capital invested by B

$= (4x \times 6 + 6 \times 8x) = 72x$

Total capital invested by C

$= (6 \times 8x + 6x \times 6)$

$= (48x + 36x) = 84x$

New ratio of capitals:

A : B : C

| Capital ⟶ | $30x$ | : | $72x$ | : | $84x$ |
|---|---|---|---|---|---|
| Profit ⟶ | 5 | : | 12 | : | 14 |

**Note :** Profit would be divided in the ratio of their capitals.

Required ratio of their profit

= 5 : 12 : 14

6. A started a business with ` 52,000 and after 4 months B joined him with ` .39,000. At the end of the year, out of the total profit B received total ` 20,000 including 25% of the profit as commission for managing the business. What amount did A receive ?

(a) ` 20,000 (b) `10,000

(c) `15,000 (d) None of these

**Sol. (a)**

| → 52,000 | : | 39,000 |
|---|---|---|
| 4 | : | 3 |
| 12 | : | 8 |
| 3 | : | 2 |
| Profit → 12 | : | 6 |

Let profit of A be 200 units and profit of B be 100 units.

Total profit = 300 units

For Managing business B received = $\frac{300\times25}{100}$ = 75 units

**Note :** Remaining profit will be divided in the ratio of their capitals.

∴ Profit of A = $\frac{225}{3}\times2$ = 150 units

Profit of B = $\frac{225}{3}\times1$ = 75 units

Total profit of B = (75 + 75)

= 150 units

According to the question,

150 units = ` 20,000

1 unit = ` $\frac{20,000}{150}$

150 units = ` $\frac{20,000}{150}\times150$

= ` **20,000 = Profit of A**

7. A working partner gets 20% as his commission of the profit after his commission is paid. If the working partner's commission is ` 8000, Then what is the total profit in the business?

(a) ` 47,000 (b) ` 45,000

(c) ` 48,000 (d) None of these

**Sol. (c)** Let the total proft = ` k.

According to the question,

Remaining profit after paying 20% to working

Partner as commission = (k – 8000)

∴ $(k - 8000)\times\frac{20}{100} = 8000$

k = 48000

∴ Total profit = ` **48000**

8. Rakesh Yadav Reader publication makes a profit of 9,00,000, 20% of which is paid as taxes. If the rest is divided among the partners P,Q and R in the ratio $1 : 1\frac{1}{2} : 2$, then the shares of P, Q and R are respectively :

(a) ` 2,40,000; ` 3,20,000; ` 1,60,000

(b) ` 3,20,000; ` 2,40,000; ` 1,60,000

(c) ` 1,60,000; ` 3,20,000; ` 2,40,000

(d) ` 1,60,000; ` 2,40,000; ` 3,20,000

**Sol. (d)** P : Q : R

Capital → $1 : \frac{3}{2} : 2$

Profit → 2 : 3 : 4

**Note :** Profit would be divided in the ratio of their capitals.

Profit = $(2x + 3x + 4x) = 9x$ units

According to the question,

$9x = 9{,}00{,}000 \times \frac{80}{100}$

$9x = 72{,}00{,}00$

$x = 8{,}00{,}00$

Profit of P = $2x = 2 \times 80{,}000$

= ` 1,60,000

Profit of Q = $3x = 3 \times 80{,}000$

= ` 2,40,000

Profit of R = $4x = 4 \times 80{,}000$

= ` 3, 20,000

9. We have to divide a sum of ` 13,950 among three peons A, B and C. B must get the double of A's share and C must get ` 50 less than the double of B's share. The share of A will be :

(a) ` 1950 (b) ` 1981.25

(c) ` 2000 (d) ` 2007.75

**Sol. (c)** Let the share of A = ` $x$

According to the question,

A : B : C

Capital → $x$ $2x$ : $(4x - 50)$

$(x + 2x + 4x - 50) = 13{,}950$

$7x - 50 = 13{,}950$

$7x = 14000$

$x = 2000$

Share of A = ` **2000**

10. X and Y are partners in a business. They invest in the ratio 5 : 6, at the end of 8 months X withdraws. If they receive profits in the ratio 5 : 9. Find how long Y's investment was used?

(a) 12 months (b) 10 months

(c) 15 months (d) 14 months

**Sol. (a)** Let Y's investment is used for

T months → Now by using formula.

$\frac{5 \times 8}{6 \times T} = \frac{5}{9}$

T = 12 months

11. A, B and C subscribe . 47000 for a business. If A subscribes ` 7,000 more than B and B ` 5,000 more than C, then out of total profit of . 4700, C receives.

(a) ` 1200 (b) ` 4500

(c) ` 1000 (d) None of these

**Sol. (c)** Let C subscribes the business = ` $x$

A : B : C

Capital → $(x + 12000) : (x + 5000) : x$

**Note :** Profit would be divide in the ratio of their capitals.

According to the question,

$(x + 12000) + (x + 5000) + x = 47000$

$3x + 17000 = 47000$

$3x = 30000$

$x = 10{,}000$

A : B : C

Capital → 22,000 : 15000 : 10000

Profit → 22 : 15 : 10

(22 + 15 + 10) units = 4700

1 unit = $\frac{4700}{47} = 100$

Share of C = 10 units = $10 \times 100$

= ` **1000**

12. ` 11250 are divided among A, B and C so that A may receive one half as much as B and C together receive and B receives one-fourth of what A and C together receive. The share of A is more than that of B by.

(a) ` 2500 (b) ` 1500

(c) ` 1800 (d) ` 650

**Sol. (b)** A : B+C

1 : 2 .....(I)

B : A+C

1 : 4 .....(II)

**Note:** The total sum of A, B and C will be same. so equate the sum of both the eqations.

After that new ratio,

A : B+C

5 : 10.....(III)

B : A+C

3 : 12.....(IV)

From equation (iii) and (iv)

A : B : C

5 : 3 : 7

According to the question,

(5 + 3 +7) units = ` 11250

15 units = ` 11250

1 unit = ` 750

Difference in shares of A and B

= (5 – 3) × 750 = ` 1500

13. X and Y enter into a partnership with their capitals in the ratio 7 : 9. At the end of 8th month, X withdraws his capital. If they receive the profits in the ratio 8 : 9, Find how long Y's capital was used.

(a) 4 months (b) 6 months

(c) 7 months (d) 8 months

**Sol. (c)** Let the y's capital was used for T months.

According to the question,

$\frac{7 \times 8}{9 \times T} = \frac{8}{9}$

T = **7 months**

Hence capital of Y was used for 7 months.

14. The investments made by X and Y are in the ratio 3 : 2. If 5% of total profit is donated and A gets ` 8,550 as his share of porfit then what is the amount of total profit.

(a) ` 14000 (b) ` 15,000

(c) ` 11,050 (d) ` 12,020

Sol. (b) Let the total profit = 100 units

Remaining profit after donation

= $100 - \frac{100 \times 5}{100} = 95$ units

$\therefore$ share of X = $\frac{95}{(3+2)} \times 3 = 57$ units

According to the question,

57 units = ` 8550

1 unit = $\frac{8550}{57}$

100 units = $\frac{8550}{57} \times 100$ = **`15000**

**Alternate :** X : Y

3 : 2

3 units = ` 8550

1 unit = ` $\frac{8550}{3}$ = ` 2850

5 units = 2850 × 5 = ` **14250**

**Note :** 5 % of total profit is donated

$\therefore$ 95 % of total profit = ` 14250

1 % of total profit = ` $\frac{14250}{95}$

100 % of total profit

= ` $\frac{14250}{95} \times 100$ = ` **15,000**

15. Rakesh Yadav and Bhuvnesh are two partners in a firm sharing the profit in the ratio 4 : 5. If the firm earns a profit of `14,130, then profit to be received by Bhuvnesh

(a) `6,280 (b) `7,850

(c) `1,570 (d) `3,140

Sol. (b)

Rakesh Yadav : Bhuvnesh

4 : 5

According to the questionm,

(4+5) units = `14,130

1 unit = ` $\frac{14,130}{9}$ = `1570

5 units = 5 × 1570 = `7850

\ Hence the share of Bhuvnesh = **`7850**

16. A and B take a grass ground on lease for ` 300 for grazing their animals. If A grazes 10 animals for 5 weeks and B grazes 15 animals for 7 weeks. The ratio in which they should divide the rent is:

(a) 1 : 2 (b) 10 : 21

(c) 11 : 20 (d) 2 : 1

Sol. (b) Total Rent = `300

| | X | | Y |
|---|---|---|---|
| No. of Animals | 10 | × | 15 |
| Time (in weeks) | 5 | × | 7 |
| Ratio of Rent | 50 | : | 105 |
| | 10 | : | 21 |

17. A started a business by investing some money and B invested 5000 more than A. A remained in business for 5 months and B remained in business for one month more than A. out of the total profit of 26000, B got 6000 more than A . Find the capitals invested by A and B.

(a) `29,000,18,000

(b) `25,000,`30,000

(c) `15,000,`10,000

(d) `15,000,`20,000

**Sol. (d)** Let amount invested by A = ` $x$

| | A | | B |
|---|---|---|---|
| Capital → | $x$ | : | $(x + 5000)$ |

According to the question,

Share of A in profit

= $\frac{(26000 - 6000)}{2}$ = `10,000

Share of B in profit

= (26000 – 10000) = ` 16,000

By using formulaes:

$$\boxed{\frac{C_1 \times T_1}{C_2 T_2} = \frac{P_1}{P_2}}$$

$$\frac{x \times 5}{(x + 5000) \times 6} = \frac{10,000}{16,000}$$

$4x = 3x + 15000$

$x$ = ` 15000

Required capital of A = ` 15,000

Required capital of B

= (15,000 + 5000) = ` 20,000

18. A and B started a business in partnership by investing Rs.10,000 and Rs. 4000 respectively. condition of partnership is that B got Rs.100 per month for management of the business. After paying 5% interest on the capital, annual profit has been distributed in the ratio of their investments. Find the share of their profit, if the annual profit is Rs. 4000.

(a) `3000 each (b) ` 2500 each

(c) `1500 each (d) `2000 each

**Sol. (d)** B's profit share in 1 year =12 × 100 = Rs. 1200

Interest of A

= $\frac{10,000 \times 5 \times 1}{100}$ = Rs. 500

Interest of B = $\frac{4000 \times 5 \times 1}{100}$

= Rs. 200

Total profit of A and B

= (1200 + 500 + 200) = Rs. 1900

Remaining profit

= (4000 – 1900) = Rs. 2100

**Note:** Remaining profit will be divide in the ratio of their profit.

| | A | | B |
|---|---|---|---|
| Capital = | 10,000 | : | 4000 |
| | 5 | : | 2 |

Share of A in remaining profit

= $\frac{2100}{(5+2)} \times 5$ = Rs. 1500

Share of B in Remaining profit

= $\frac{2100}{(5+2)} \times 2$ = Rs. 600

Total profit of A = 500 + 1500

= Rs. 2000

Total profit of B = 1200 + 600 + 200 = Rs. 2000

19. A starts a business with Rs.1000 B joins him after 6 months with Rs. 4000. C puts a sum of Rs. 5000 for 4 months only. At the end of the year the business gave a profit of Rs. 2800. How should the profit be divided among them?

(a) Rs. 600, Rs. 1200, Rs. 1000

(b) Rs. 800, Rs. 600, Rs. 1400

(c) Rs. 1000, Rs. 1200,Rs. 600

(d) Rs. 1200, Rs. 600, Rs. 1000

Sol. (a) According to the question,

invest. → 1000×12 : 4000×6 : 5000×4

3 : 6 : 5

Profit of A = 3 × 200 = Rs. 600

Profit of B = 6 × 200 = Rs. 1200

Profit of C = 5 × 200 = Rs. 1000

20. A and B enter into a partnership for a year. A contributes Rs. 3000 and B Rs. 4000. After 4 months they admit C, who contributes Rs. 4500. If B withdraws his contribution after 6 months, how would they share a profit of Rs. 1000 at the end of the year?

(a) Rs. 250, Rs. 200, Rs. 550

(b) Rs. 150, Rs. 200, Rs. 650

(c) Rs. 375, Rs. 250, Rs. 375

(d) Data inadequate

Sol.(c)

| | A | : | B | : | C |
|---|---|---|---|---|---|
| Invest. | 3000 | : | 4000 | : | 4500 |
| Time | 12 | : | 6 | : | 8 |
| Profit | 3000×12 | : | 4000×6 | : | 4500×8 |
| | 3 | : | 2 | : | 3 |

8 units = 1000

1 unit = $\frac{1000}{8}$ = 125

Profit of A = 3×125 = 375

Profit of B = 2×125 = 250

Profit of C = 3×125 = 375

21. A, B and C enter into a partnership. A contributes one-third of the capital for one-third of the time. B contri butes one-sixth of the capital for one-third of the time C contributes the remaining capital for the whole time. How should they divide a profit of Rs. 1200.

(a) Rs. 300, Rs. 200, Rs. 700

(b) Rs. 200,Rs. 100,Rs. 900

(c) Rs. 375, Rs250, Rs. 575

(d) Rs. 385, Rs 255, Rs. 475

Sol. (b)

| | A | | B | | C |
|---|---|---|---|---|---|
| Invest ® | $\frac{1}{3}$ | : | $\frac{1}{6}$ | : | $\frac{1}{3}+\frac{1}{6}=\frac{1}{2}$ |
| Time ® | $\frac{1}{3}$ | : | $\frac{1}{3}$ | : | 1 |
| Profit ® | $\frac{1}{3}\times\frac{1}{3}$ | : | $\frac{1}{3}\times\frac{1}{6}$ | : | $\frac{1}{2}\times1$ |
| | $\frac{1}{9}$ | : | $\frac{1}{18}$ | : | $\frac{1}{2}$ |
| | 2 | : | 1 | : | 9=12 |

Q 12 Units = 1200

\ 1 Unit = 100

Profit of A = 2 × 100 = Rs. 200

Profit of B = 1 × 100 = Rs. 100

Profit of C = 9 × 100 = Rs. 900

22. Manoj got Rs. 6000 as his share out of the total profit of Rs. 9000 which he and Ramesh earned at the end of one year. If Manoj invested Rs. 20,000 for 6 months, where as Ramesh invested his amount for the whole year, the amount invested by Ramesh was

(a) Rs. 60,000 (b) RS. 10,000

(c) Rs. 40,000 (d) RS. 5000

Sol. (d)

| | M | : | R |
|---|---|---|---|
| Profit ® | 6000 | : | 3000 |
| | 2 | : | 1 |
| Time ® | 6 | : | 12 |
| Invest. ® | $\frac{2}{6}$ | : | $\frac{1}{12}$ |
| | 4 | : | 1 |

4 units ® 20000

1 unit = 5000

Ramesh's invested

= 1 × 5000 = Rs.5000

23. A and B enter into partnership investing Rs. 12000 and Rs. 16000 respectively After 8 months, C also joins the business with a capital of Rs. 15000. The share of C in a profit of Rs. 45,600 after 2 years will be

(a) Rs. 12000 (b) Rs. 14,400

(c) Rs. 19,200 (d) Rs. 21,200

Sol. (a)

| | A | : | B | : | C |
|---|---|---|---|---|---|
| **Invest.** | 12000×24 | : | 16000×24 | : | 15000×16 |
| Profit | 6 | : | 8 | : | 5 |

19 units ® 45600

1 unit ® = 2400

C's Amount = 5 × 2400

= Rs. 12000

24. A started a business by investing Rs. 2700. After sometime B joined him by investing Rs. 2025. At the end of one year, the profit was divided in the ratio 2 : 1. After how many months did B join the business?

(a) 4 Months (b) 6 Months

(c) 3 Months (d) 2 Months

Sol. (a) According to the question,

| | A | : | B |
|---|---|---|---|
| Invest. | 2700×12 | : | 2025×T |
| Profit | 2 | : | 1 |
| | 2700×6 | : | 2025×T |

$T = \frac{2700' 6}{2025}$

T = 8 months

Hence B joints after 4 months

25. A, B and C invested in the ratio 1 : 2 : 3; the timing of their investments being in the ratio 1 : 2 : 3. In what ratio would thier profit be distributed?

(a) 3 : 2 : 1 (b) 1 : 2 : 3

(c) 1 : 4 : 9 (d) 9 : 4 : 1

Sol. (c)

| | A | : | B | : | C |
|---|---|---|---|---|---|
| Invest. | 1 | : | 2 | : | 3 |
| Time. | 1 | : | 2 | : | 3 |
| Profit | 1 | : | 4 | : | 9 |