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QUANTITATIVE APTITUDE · FREE STUDY MATERIAL

Partnership

Formulas & Shortcut Tricks

Every important formula, shortcut and exam trick for Partnership in one place – with solved examples, common mistakes and a one-page revision sheet.

WHAT'S INSIDE

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USEFUL FOR

- Bank PO & Clerk (IBPS, SBI, RBI)
- SSC CGL / CHSL / MTS
- Railways (RRB NTPC, Group D)
- Campus placements (TCS, Infosys, Wipro, Accenture)
- UPSC CSAT & state PSC exams

Practise **Partnership** free on LearnFrenzy – questions with instant explanations →

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1 Topic introduction

What it is, why it matters and how it is asked

In a partnership two or more people put money into a business and share its profit (or loss). The fair rule is simple: each partner's share is proportional to how much money they put in and for how long it stayed in the business. Profit ∝ capital × time.

So every partnership question is really a ratio question. Work out each partner's "capital × months", simplify the ratio, and divide the profit. Salaries for working partners, interest on capital or charity are taken out first; only what remains is shared in the ratio.

Why it matters in exams

- Bank and SSC papers ask 1–2 partnership questions, often with partners joining late or withdrawing money.
- Placement tests use working partners, interest on capital and "find the month B joined".
- It is a direct application of ratios, so it is quick to master and score.

Where it is used

- Sharing profit in small businesses and joint ventures.
- Sharing rent for shared land, pasture or vehicles by use.
- Splitting returns on any joint investment.

Common question patterns

Simple partnership
Same time, different capitals – share in capital ratio.

Compound partnership
Different capitals and different times.

Join late / leave early
A partner is in the business for part of the year.

Capital changes
Money added or withdrawn during the year.

Working partner
Salary or commission paid before sharing the rest.

Find the unknown
Capital, months or the month a partner joined.

Pasture rent
Rent shared by animals × months.

Deductions and loss
Charity, reserve or interest first; losses shared the same way.

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2 Important formulas

Cards marked MOST USED are the ones to revise first

The basic rules

Simple partnership

MOST USED

Same time for all partners → profit ratio = capital ratio

If everyone invests for the whole period, only the amounts matter.

EXAMPLE A ₹40,000 and B ₹60,000 for a year, profit ₹15,000 → 2 : 3 → **₹6,000 and ₹9,000**.

Compound partnership

MOST USED

Profit ratio = $C_1T_1 : C_2T_2 : C_3T_3$

Multiply each capital by the months it was in the business.

C – capital **T** – time (months)

EXAMPLE A ₹30,000 for 12 months, B ₹45,000 for 8 months → 360 : 360 → profit ₹24,000 shared **₹12,000 each**.

Joining late or leaving early

Months in business = 12 − months missed

"Joined after 3 months" means 9 months in a 12-month year.

EXAMPLE B joins after 3 months with ₹48,000 → B's product = 48,000 × 9 = **4,32,000** rupee-months.

Changes during the year

Capital added or withdrawn

MOST USED

Partner's total = Σ (capital in each period × months of that period)

Split the year at every change and add up the pieces.

EXAMPLE A: ₹50,000 for 4 months, then ₹70,000 for 8 months → 2,00,000 + 5,60,000 = **7,60,000** rupee-months.

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Finding the unknown months or capital

MOST USED

> Set C_1T_1/C_2T_2 equal to the given profit ratio and solve

One equation, one unknown.

EXAMPLE A ₹24,000 for 12 months, B ₹36,000; profits 2 : 1 → 2,88,000 = 2 × 36,000 × t → t = 4 → B joined after **8 months**.

Before the profit is shared

Working partner's salary or commission

MOST USED

> Pay the salary / commission first; share the rest in the capital × time ratio

The working partner gets both: the salary and a share of the rest.

EXAMPLE Profit ₹60,000; A takes 10% for managing; rest 2 : 1 → A = 6,000 + 36,000 = **₹42,000**.

Interest on capital

> Pay each partner r% interest on their capital, then share the remaining profit

Interest is paid even to the partner who invested less.

EXAMPLE A ₹80,000, B ₹40,000 get 5% interest → ₹4,000 and ₹2,000 are paid **before** the rest is shared.

Charity or reserve

> Remove the stated percentage first, then share what is left

Read carefully whether the percentage is of the whole profit.

EXAMPLE Profit ₹50,000, 10% to charity, rest 4 : 5 → B = 45,000 × 5/9 = **₹25,000**.

Rent sharing

Pasture or vehicle rent

MOST USED

> Rent ratio = (animals × months) for each person

It is a partnership where the "capital" is the number of animals or vehicles.

EXAMPLE A 10 cows × 4 months, B 8 × 5, C 12 × 5; rent ₹3,500 → 40 : 40 : 60 = 2 : 2 : 3 → C pays **₹1,500**.

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3 Shortcut tricks & smart techniques

Each trick says when to use it – that matters as much as the trick

Cancel common factors first

MOST USED

USE WHEN Large capitals in thousands and times in months.

1. Drop the common zeros from the capitals.
2. Cancel any factor common to all the products before dividing the profit.

EXAMPLE ₹45,000, ₹60,000, ₹75,000 for a year → 45 : 60 : 75 = **3 : 4 : 5**.

Month table for capital changes

MOST USED

USE WHEN Money is added or withdrawn, or partners join at different times.

Partner	Months 1–6	Months 7–12	Capital × months
A	₹60,000	₹40,000	3,60,000 + 2,40,000 = 6,00,000
B	₹45,000	₹45,000	5,40,000

EXAMPLE A : B = 6,00,000 : 5,40,000 = **10 : 9**.

Equal profits → capital and time are inversely related

USE WHEN Two partners earn the same profit.

1. $C_1T_1 = C_2T_2$.
2. Whoever invested more must have invested for a shorter time.

EXAMPLE A ₹30,000 for 12 months; B ₹40,000 earns the same → T = 360/40 = **9 months** (joined after 3).

Total profit from the difference of two shares

USE WHEN "B gets ₹D more than A."

1. Difference of the ratio terms = D rupees.
2. Total = D × (sum of terms) ÷ (difference of terms).

EXAMPLE Capitals 3 : 4 : 6, B gets ₹2,400 more than A → total = 2,400 × 13 ÷ 1 = **₹31,200**.

Fractional capitals and times

USE WHEN Capitals or times are given as fractions.

1. Multiply each capital fraction by its time fraction.
2. Clear the fractions with the LCM of the denominators.

EXAMPLE A: 1/3 of capital for 1/4 of the time; B: 1/4 for 1/2; C: the rest (5/12) for the full time → 1/12 : 1/8 : 5/12 = **2 : 3 : 10**.

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4 Solved examples

The full method on the left, the exam shortcut on the right

1 SIMPLE PARTNERSHIP

A, B and C invest ₹45,000, ₹60,000 and ₹75,000 for a year. The profit is ₹36,000. What is C's share?

STEP BY STEP

1. Ratio 45 : 60 : 75 = 3 : 4 : 5 (12 parts).
2. One part = 36,000 ÷ 12 = 3,000.
3. C = 5 × 3,000 = 15,000.

SHORTCUT

36,000 × 5/12 = 15,000.

Why it works: Everyone invested for the same time, so only the capitals count.

Answer: ₹15,000

2 JOINING LATE

A starts a business with ₹40,000. After 4 months B joins with ₹60,000. At the end of the year the profit is ₹27,000. What is B's share?

STEP BY STEP

1. A: 40,000 × 12 = 4,80,000.
2. B: 60,000 × 8 = 4,80,000.
3. Ratio 1 : 1 → B = 13,500.

SHORTCUT

40 × 12 = 60 × 8 → equal shares → 27,000 ÷ 2.

Why it works: B's larger capital was in the business for fewer months.

Answer: ₹13,500

3 WITHDRAWAL

A starts with ₹60,000 and withdraws ₹20,000 after 6 months. B invests ₹45,000 for the whole year. The profit is ₹38,000. Find A's share.

STEP BY STEP

1. A: 60,000 × 6 + 40,000 × 6 = 6,00,000.
2. B: 45,000 × 12 = 5,40,000.
3. Ratio 10 : 9 → A = 38,000 × 10/19 = 20,000.

SHORTCUT

In thousands: 600 : 540 = 10 : 9 → 38,000 × 10/19.

Why it works: A's capital changed mid-year, so add the two periods separately.

Answer: ₹20,000

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4 FIND THE MONTH

A invests ₹30,000 for the whole year. B joins later with ₹40,000. At the year end their profits are equal. After how many months did B join?

STEP BY STEP

1. Equal profits → 30,000 × 12 = 40,000 × t.
2. t = 3,60,000 ÷ 40,000 = 9 months in business.
3. B joined after 12 − 9 = 3 months.

SHORTCUT

T = 30 × 12 ÷ 40 = 9 → joined after 3 months.

Why it works: The question asks when B joined, not how long B stayed.

Answer: After 3 months

5 WORKING PARTNER

A and B invest in the ratio 3 : 2. A manages the business and takes 12% of the profit as salary; the rest is shared in the capital ratio. The profit is ₹90,000. How much does A receive in all?

STEP BY STEP

1. Salary = 12% of 90,000 = 10,800.
2. Remaining 79,200 shared 3 : 2 → A gets 47,520.
3. A total = 10,800 + 47,520 = 58,320.

SHORTCUT

A = 0.12 × 90,000 + 0.88 × 90,000 × 3/5 = 58,320.

Why it works: The salary is paid first; only the remainder follows the capital ratio.

Answer: ₹58,320

6 INTEREST ON CAPITAL

A invests ₹80,000 and B ₹40,000. Each gets 5% interest on capital and the rest of the profit is shared equally. The profit is ₹30,000. What does A get?

STEP BY STEP

1. Interest: A 4,000, B 2,000 → total 6,000.
2. Remaining 24,000 shared equally → 12,000 each.
3. A = 4,000 + 12,000 = 16,000.

SHORTCUT

Interest first, then half the rest: 4,000 + 12,000.

Why it works: The equal split applies only after the interest has been paid.

Answer: ₹16,000

7 PASTURE RENT

A grazes 12 oxen for 5 months, B 15 oxen for 4 months and C 15 oxen for 6 months in a pasture rented for ₹4,200. How much should C pay?

STEP BY STEP

1. Ox-months: A 60, B 60, C 90.
2. Ratio 2 : 2 : 3 (7 parts).
3. C = 4,200 × 3/7 = 1,800.

SHORTCUT

60 : 60 : 90 → C pays 3/7 of the rent.

Why it works: Each person pays for how much grazing they used.

Answer: ₹1,800

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8 FRACTIONS

A contributes 1/3 of the capital for 1/4 of the time, B 1/4 of the capital for 1/2 of the time, and C the rest of the capital for the whole time. Out of a profit of ₹45,000, what is B's share?

STEP BY STEP

1. C's capital = 1 − 1/3 − 1/4 = 5/12.
2. Products: 1/12 : 1/8 : 5/12 → × 24 → 2 : 3 : 10.
3. B = 45,000 × 3/15 = 9,000.

SHORTCUT

Multiply fractions, clear with 24, then share 45,000 in 2 : 3 : 10.

Why it works: Fractions of capital and time multiply exactly like amounts and months.

Answer: ₹9,000

9 DIFFERENCE OF SHARES

Capitals of A, B and C are in the ratio 3 : 4 : 6 for the same time. B's share of the profit is ₹2,400 more than A's. What is the total profit?

STEP BY STEP

1. B − A = 1 part = 2,400.
2. Total = 13 parts = 31,200.

SHORTCUT

2,400 × 13 = 31,200.

Why it works: The gap between the ratio terms tells you the value of one part.

Answer: ₹31,200

10 LOSS

Three partners with capitals in the ratio 5 : 3 : 2 make a loss of ₹18,000. How much does the second partner lose?

STEP BY STEP

1. Total parts = 10 → one part = 1,800.
2. Second partner = 3 × 1,800 = 5,400.

SHORTCUT

18,000 × 3/10 = 5,400.

Why it works: A loss is shared in the same ratio as a profit.

Answer: ₹5,400

11 CHARITY FIRST

A business earns ₹50,000. 10% is given to charity and the rest is shared between A and B in the ratio 4 : 5. What is B's share?

STEP BY STEP

1. Charity = 5,000 → remaining 45,000.
2. B = 45,000 × 5/9 = 25,000.

SHORTCUT

0.9 × 50,000 × 5/9 = 25,000.

Why it works: The ratio applies only to the profit left after charity.

Answer: ₹25,000

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5 Important exam tips

Patterns, traps and habits that save marks

Frequently asked question patterns

- Shares when capitals differ but time is the same.
- A partner joins after k months or leaves before the year ends.
- Capital added or withdrawn during the year.
- Working partner's salary or commission, and interest on capital.
- Find the capital, the months or the month a partner joined.
- Pasture or vehicle rent by animals × months.
- Total profit from the difference between two shares.

Common mistakes to avoid

- Ignoring time when partners invest for different periods.
- Answering "months in business" when the question asks "after how many months did B join".
- Sharing the whole profit before paying the salary or interest.
- Forgetting that a partner's capital changed in the middle of the year.
- Using the capital ratio for rent instead of animals × months.
- Not simplifying large products before dividing the profit.

Points to remember

- Profit $\propto$ capital × time.
- "Joined after k months" → 12 − k months in a year.
- Salary, commission, interest and charity come out first.
- Equal profits → $C_1T_1 = C_2T_2$.
- Losses follow the same ratio as profits.

Speed and accuracy

- Write capitals in thousands and cancel common factors.
- Use a month table whenever the capital changes.
- Find one part from a difference, then the total.
- Check by adding the shares back to the total profit.

Preparation strategy

- Treat every question as a ratio of capital × time first.
- Practise on LearnFrenzy in order: Easy → Medium → Hard → Exam Pattern Mix → Data Sufficiency.
- Aim for 40–50 seconds per partnership question.
- Keep an error log of "joined after" and salary-first slips.
- Read the Quick Revision Sheet (next page) the night before the exam.

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6 Quick revision sheet

Everything on one page for the night before the exam

Formulas

Simple partnership	**profit ∝ capital**	Compound partnership	**profit ∝ capital × time**
Share	**profit × (CT)/Σ CT**	Joined after k months	**12 – k months**
Capital changes	**Σ capital × months**	Equal profits	**$C_1T_1 = C_2T_2$**
Unknown months	**$t = C_1T_1/(\text{ratio} \times C_2)$**	Working partner	**salary + share of rest**
Interest on capital	**pay r% first**	Charity / reserve	**deduct first**
Rent (pasture)	**∝ animals × months**	Difference D	**total = D × Σ/(term gap)**
Loss	**same ratio as profit**	Fractions	**multiply, clear with LCM**

Shortcut tricks

- Drop zeros, cancel common factors.
- Month table for every change.
- Joined after k → 12 – k months.
- Salary / interest before sharing.
- One part from the difference.
- Equal shares → CT equal.

Must-know numbers

Year split	`after 3 months → 9 · after 4 → 8 · after 6 → 6 · after 8 → 4 · after 9 → 3`
Common ratios	`45:60:75 = 3:4:5 · 40:60 = 2:3 · 30×12 : 45×8 = 1:1`

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7 A message from LearnFrenzy

For everyone preparing for placements, competitive and government exams

Keep going – you are closer than you think

Success in examinations is not just about how many hours you study. It is about how effectively you understand concepts, practise questions, and improve yourself every day.

Every formula you learn, every problem you solve, and every mistake you correct brings you one step closer to your goal.

Whether you are preparing for campus placements, competitive examinations, or government jobs, remember that consistency, confidence, and smart preparation make a real difference.

Don't just memorize formulas. Understand the concepts, practise smart techniques, and develop the confidence to solve problems independently.

Your hard work today can create the opportunities you dream of tomorrow.

— Team LearnFrenzy

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