

Quant Methods

1. Percentage questions: use a base of 100

If no actual value is needed, assume the original quantity is 100.

Example: A salary rises by 25% and then falls by 20%.

- Start: 100.
- After rise: 125.
- After fall: 100.
- Net change: 0%.

This avoids unnecessary algebra.

2. Ratio questions: convert only when necessary

Example: $A:B = 3:5$ and $B:C = 10:7$.

Make B equal: multiply the first ratio by 2.

$A:B:C = 6:10:7$.

Do not add ratios unless they describe compatible quantities.

3. Average questions: think in totals

If the average of 8 values is 15, total = 120. Adding 24 gives total 144 across 9 values, so new average = 16.

The trap is averaging averages without accounting for group sizes.

4. Time and work: convert people into rates

If A does a job in 12 days, A's one-day work is $\frac{1}{12}$. If B does it in 18 days, combined work is:

$$\frac{1}{12} + \frac{1}{18} = \frac{5}{36}.$$

Time required = $\frac{36}{5}$ days.

For a worker joining or leaving, split the job into phases and calculate work done in each phase.

5. Speed questions: draw a line

For train questions, write:

distance covered = train length + object/platform length.

For same-direction meeting/overtake questions, use relative speed. For equal-distance journeys, use the harmonic-mean average-speed formula, not the ordinary average.

6. Mixture questions: track pure content

Example: A 40-litre mixture is 25% acid. Pure acid = 10 litres. If 10 litres of water is added, acid remains 10 litres and total becomes 50 litres, so concentration becomes 20%.

7. Data interpretation: estimate first, calculate second

1. Read the title, units and years/categories.
2. Mark what the question asks: difference, ratio, percentage or total.
3. Estimate options before detailed arithmetic.
4. Use exact arithmetic only if two options remain close.

Never calculate all bars/tables when the question needs only two.

8. Number system: use cycles

For the unit digit of 7^{103} :

- Cycle length is 4: 7, 9, 3, 1.
- $103 \bmod 4 = 3$.
- Answer is the third element: 3.

For remainders with big powers, look for a repeating cycle modulo the divisor.

9. Probability: define the sample space

Before multiplying or adding probabilities, ask:

- Are events independent?
- Are outcomes equally likely?
- Does order matter?

Use multiplication for "and" in independent events. Use addition for mutually exclusive "or" events. Use complement for "at least one."

Quant traps checklist

- ☐ Did I use the correct base for a percentage?
- ☐ Did I convert minutes/hours and km/h/m/s?
- ☐ Did I use total, not average, when adding/removing members?
- ☐ Did I add rates, not times, in work problems?
- ☐ Did I check whether equal-distance average speed needs the harmonic mean?

[[02_Aptitude/Aptitude_Drills|Aptitude drills]] · [[02_Aptitude/Aptitude_Formula_Sheet|Formula sheet]]