CA Papers

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Calculator Tricks for CA Foundation Maths

Master these calculator shortcuts to save precious time in your CA Foundation Quantitative Aptitude exam. Every minute saved on calculations is a minute earned for thinking.

May 2026 Ready | Paper 3 | Time Saving

✅ **Calculator is Allowed**

ICAI permits scientific calculators (non-programmable) in CA Foundation exams. Make sure yours has x^y, √, and memory functions (M+, M-, MR).

Compound Interest & Time Value

Compound Interest (CI)

```
A = P(1 + r/n)^(nt)
```

Steps:

1. Enter Principal (P)
2. Press × (1 + rate/100) =
3. Press × (1 + rate/100) = (repeat for each year)
4. Subtract P to get CI

Shortcut:

Use x^y button: P × (1.rate)^years =

Present Value (PV)

```
PV = FV / (1 + r)^n
```

Steps:

1. Calculate (1 + r)^n first
2. Store in memory (M+)
3. Enter FV ÷ MR =

Shortcut:

FV ÷ (1.rate) x^y years =

Example: PV of Rs 15,000 due in 4 years at 8%: 15000 ÷ 1.08 x^y 4 = 11,025

EMI Calculation

```
EMI = P × r × (1+r)^n / [(1+r)^n − 1]
```

Steps:

1. Calculate (1+r)^n, store in M1
2. Multiply by P × r, store in M2
3. M1 - 1 = denominator
4. M2 ÷ denominator = EMI

Shortcut:

Break into parts, use memory keys

Example: Rs 5,00,000 loan at 12% p.a. (1% monthly) for 24 months

Mean (Arithmetic)

```
Mean = Σx / n
```

Steps:

1. Add all values: x1 + x2 + x3... =
2. Divide by count

Shortcut:

Use GT (Grand Total) if available

Example: Mean of 12, 15, 18, 21, 24: (12+15+18+21+24) ÷ 5 = 18

Standard Deviation

```
σ = √[Σ(x−x̄)² / n]
```

Steps:

1. Calculate mean first
2. For each value: (x - mean)² and add to running total
3. Divide sum by n
4. Take square root (√)

Shortcut:

Use M+ to accumulate squared deviations

Example: Store mean in memory, calculate deviations step by step

Coefficient of Variation

```
CV = (σ / Mean) × 100
```

2. Divide by Mean
3. Multiply by 100

Shortcut:

SD ÷ Mean × 100 =

Example: If SD = 5 and Mean = 25: 5 ÷ 25 × 100 = 20%

Quick Mental Math

Percentage Shortcuts

`Various`

Steps:

1. 10% = divide by 10
2. 5% = half of 10%
3. 15% = 10% + 5%
4. 25% = divide by 4

Shortcut:

Break percentages into easy parts

Example: 17.5% of 400 = 10% (40) + 5% (20) + 2.5% (10) = 70

Squaring Numbers Near 50

$(50 \pm n)^2 = 2500 \pm 100n + n^2$

Steps:

1. Find difference from 50

Shortcut:

$47^2 = 2500 - 300 + 9 = 2209$

Example: $53^2 = 2500 + 300 + 9 = 2809$

Rule of 72

```
Doubling time = 72 / interest rate
```

Steps:

1. Divide 72 by the interest rate

Shortcut:

Quick estimate for doubling period

Example: At 8% interest, money doubles in 72/8 = 9 years

Financial Mathematics

Annuity Present Value

```
PV = PMT × [(1 − (1+r)^−n) / r]
```

Steps:

1. Calculate (1+r)^-n using x^y
2. Subtract from 1
3. Divide by r
4. Multiply by PMT

Shortcut:

Example: PV of Rs 1000/month for 12 months at 1%/month

Sinking Fund

```
A = PMT × [(((1+r)^n) − 1) / r]
```

Steps:

1. Calculate (1+r)^n
2. Subtract 1
3. Divide by r
4. Multiply by PMT

Shortcut:

Similar to annuity, different formula arrangement

Example: Monthly deposit needed to accumulate Rs 1,00,000 in 2 years

Effective Rate from Nominal

```
Effective = (1 + r/n)^n − 1
```

Steps:

1. Divide nominal rate by compounding frequency
2. Add 1
3. Raise to power of frequency
4. Subtract 1

Shortcut:

(1 + rate/n) x^y n - 1 =

Exam Day Tips

- ✓ Always verify your calculator is in the correct mode (degrees vs radians for trigonometry)
- ✓ Practice the x^y button for powers - it saves significant time
- ✓ Use memory keys (M+, M-, MR, MC) to store intermediate results
- ✓ For repeated calculations, use the ANS key to chain operations
- ✓ Keep parentheses minimal - break complex formulas into steps
- ✓ Double-check negative signs, especially in PV/FV calculations
- ✓ Round only at the final step to avoid cumulative errors

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