NaukriPhod.

"Moti kitaab chhodo. Seedha nichod padho."

RRB NTPC • SSC CGL • SSC CHSL

The "Bina Pen Uthaye" (No-Pen) Speed Math Cheat Sheet (Top 80 Option-Elimination PYQs)

PART I: TOP 20 "5-SECOND OPTION ELIMINATION" TRAPS (KILL THE QUESTION WITHOUT ROUGH WORK)

Q1. Find the volume of a solid sphere whose radius is 21 cm. [Asked in: RRB NTPC CBT-1 & SSC CGL Tier-1]

(A) 36,404 cm^3 (B) 38,808 cm^3 (C) 39,205 cm^3 (D) 37,602 cm^3

Answer: (B) 38,808 cm^3 — Formula $(4/3)\pi r^3$ = (88 × 441) wastes 90 seconds if multiplied manually.
NaukriPhod. No-Pen Trick: Any formula with π (22/7) is divisible by 11 AND unit digit is 8 × 1 = 8 → Only (B) 38,808 fits!

Q2. What is the curved surface area of a right circular cylinder with radius 14 cm and height 15 cm? [Asked in: RRB NTPC Graduate Level & SSC CHSL]

(A) 1,240 cm^2 (B) 1,320 cm^2 (C) 1,410 cm^2 (D) 1,560 cm^2

Answer: (B) 1,320 cm^2 — CSA = $2\pi rh$ = 2 × (22/7) × 14 × 15 = 1,320 cm^2.
NaukriPhod. No-Pen Trick: Check Divisibility by 11 (from π = 22/7): In 1,320, (1 + 2) − (3 + 0) = 0 → Instant Answer (B)!

Q3. If the ratio of Cost Price (CP) to Selling Price (SP) of an article is 20 : 23, find the profit percentage. [Asked in: RRB NTPC CBT-1 & SSC MTS/CHSL]

(A) 12% (B) 15% (C) 18% (D) 20%

Answer: (B) 15% — Never write (23x − 20x)/20x × 100 on your rough sheet.
NaukriPhod. No-Pen Trick: Turn CP (20) into 100 by multiplying by 5 → Multiply the gap (3) by 5 = 15% in 2 seconds!

Q4. If $x + (1/x) = 5$, then what is the value of $x^2 + (1/x^2)$? [Asked in: SSC CGL Tier-1, CHSL & RRB NTPC]

(A) 27 (B) 23 (C) 25 (D) 21

Answer: (B) 23 — Standard algebraic identity where $(x + 1/x)^2 - 2 = k^2 - 2$.
NaukriPhod. No-Pen Trick: Spot the option that is "Perfect Square minus 2" → $5^2 - 2 = 25 - 2 = 23$!

Q5. If $x + (1/x) = 4$, then find the value of $x^3 + (1/x^3)$. [Asked in: SSC CGL Tier-2 & RRB NTPC CBT-2]

(A) 64 (B) 52 (C) 48 (D) 76

Answer: (B) 52 — Derived from cubing both sides: $k^3 - 3k$.
NaukriPhod. No-Pen Trick: Cube the number and subtract 3 times the number → $4^3 - (3 \times 4) = 64 - 12 = 52$!

Q6. A number when divided by 899 leaves a remainder of 63. What will be the remainder if the same number is divided by 29? [Asked in: RRB NTPC & SSC CHSL Tier-1]

(A) 4 (B) 5 (C) 7 (D) 9

Answer: (B) 5 — Since 899 is completely divisible by 29 (29 × 31), we ignore 899.
NaukriPhod. No-Pen Trick: Divide the old remainder (63) directly by the new divisor (29) → 63 − 58 = 5!

Q7. If A : B = 3 : 4 and B : C = 5 : 7, then find the combined ratio A : B : C. [Asked in: RRB NTPC CBT-1 & SSC CGL]

(A) 12 : 20 : 28 (B) 15 : 20 : 28 (C) 15 : 16 : 28 (D) 9 : 12 : 21

Answer: (B) 15 : 20 : 28 — Do not draw cross-multiplication tables.
NaukriPhod. No-Pen Trick: Check which option has first two numbers in 3 : 4 ratio AND last two in 5 : 7 → Only (B) 15:20:28!

Q8. Find the Compound Interest on ₹10,000 at 10% per annum for 2 years, compounded annually. [Asked in: RRB NTPC & SSC CHSL]

(A) ₹2,000 (B) ₹2,100 (C) ₹2,200 (D) ₹2,050

Answer: (B) ₹2,100 — Using $A = P(1 + R/100)^n$ is too slow in the exam hall.
NaukriPhod. No-Pen Trick: Memorize the golden code: 10% for 2 years CI = 21% directly → 21% of ₹10,000 = ₹2,100!

Q9. The average of 7 consecutive odd numbers is 35. What is the largest of these 7 numbers? [Asked in: RRB NTPC CBT-1 & SSC CGL]

(A) 39 (B) 41 (C) 43 (D) 37

Answer: (B) 41 — For consecutive odd/even series, the average is always the exact middle term.
NaukriPhod. No-Pen Trick: Largest = Average + (n − 1) → 35 + (7 − 1) = 41! (Smallest = 35 − 6 = 29).

Q10. What is the unit digit in the product $(237)^{58} \times (413)^{21} \times (194)^{44}$? [Asked in: SSC CGL Tier-1 & RRB NTPC]

(A) 4 (B) 2 (C) 6 (D) 8

Answer: (B) 2 — Divide exponents by 4 to find the cyclicity remainder.
NaukriPhod. No-Pen Trick: 7^2 (ends in 9) × 3^1 (ends in 3) × 4^{even} (ends in 6) → 9 × 3 × 6 = 162 → Unit Digit 2!

Q11. Find the single equivalent discount for two successive discounts of 20% and 10%. [Asked in: RRB NTPC, SSC CHSL & CGL]

(A) 30% (B) 28% (C) 26% (D) 32%

Answer: (B) 28% — Trap Option (A) 30% catches beginners who simply add 20 + 10.
NaukriPhod. No-Pen Trick: Formula: (A + B) − (A × B)/100 → (20 + 10) − (2 × 1) = 30 − 2 = 28%!

Q12. If the price of sugar increases by 25%, by what percentage must a family reduce its consumption so expenditure remains unchanged? [Asked in: RRB NTPC CBT-1 & SSC CHSL]

(A) 25% (B) 20% (C) 16.66% (D) 33.33%

Answer: (B) 20% — Classic expenditure-neutral fraction jump question.
NaukriPhod. No-Pen Trick: +25% is +1/4. Increase denominator by 1 to reverse it → −1/(4+1) = −1/5 = 20%!

Q13. What is the difference between Compound Interest and Simple Interest on ₹15,000 at 8% p.a. for 2 years? [Asked in: SSC CGL Tier-1 & RRB NTPC]

(A) ₹84 (B) ₹96 (C) ₹108 (D) ₹112

Answer: (B) ₹96 — 2-Year CI–SI Difference = P × $(R/100)^2$.
NaukriPhod. No-Pen Trick: Multiply 15 × 8^2 and adjust zeros → 15 × 64 = 960 → ₹96!

Q14. Which of the following 6-digit numbers is completely divisible by 9? [Asked in: RRB NTPC CBT-1 & SSC CHSL]

(A) 452,134 (B) 543,267 (C) 612,431 (D) 721,543

Answer: (B) 543,267 — A number is divisible by 9 if its Digital Sum is a multiple of 9.
NaukriPhod. No-Pen Trick: Cancel pairs adding to 9! In (B) 5+4=9, 3+6=9, 2+7=9 → Nothing left, 100% divisible!

Q15. Find the value of √(12 + √(12 + √(12 + ... up to infinity))). [Asked in: RRB NTPC CBT-1 & CBT-2]

(A) 3 (B) 4 (C) 6 (D) 2

Answer: (B) 4 — Break 12 into two consecutive factors (n and n+1): 3 × 4 = 12.
NaukriPhod. No-Pen Trick: Since the sign is '+', pick the bigger factor (4); if the sign is '−', pick the smaller factor (3)!

Q16. The Cost Price of 15 articles is equal to the Selling Price of 12 articles. Find the profit percentage. [Asked in: SSC CGL, CHSL & RRB NTPC]

(A) 20% (B) 25% (C) 30% (D) 16.66%

Answer: (B) 25% — Swap the numbers: CP = 12 and SP = 15.
NaukriPhod. No-Pen Trick: Profit is 3 on CP of 12 → 3/12 = 1/4 = 25% directly!

Q17. A can finish a work in 10 days and B can finish the same work in 15 days. Working together, how many days will they take? [Asked in: RRB NTPC CBT-1 & SSC MTS]

(A) 5 days (B) 6 days (C) 8 days (D) 7.5 days

Answer: (B) 6 days — Combined time is always Product ÷ Sum.
NaukriPhod. No-Pen Trick: (A × B) / (A + B) → (10 × 15) / (10 + 15) = 150 / 25 = 6 days!

Q18. A man goes from A to B at 20 km/hr and returns from B to A at 30 km/hr. What is his average speed for the whole journey? [Asked in: RRB NTPC & SSC CHSL]

(A) 25 km/hr (B) 24 km/hr (C) 22 km/hr (D) 26 km/hr

Answer: (B) 24 km/hr — Never mark 25 km/hr (simple average of 20 and 30 is a classic exam trap!).
NaukriPhod. No-Pen Trick: Use 2xy / (x + y) → (2 × 20 × 30) / 50 = 1200 / 50 = 24 km/hr!

Q19. If the radius of a circle is increased by 10%, by what percentage does its area increase? [Asked in: RRB NTPC CBT-1 & SSC CGL]

(A) 10% (B) 21% (C) 20% (D) 22%

Answer: (B) 21% — Since Area = πr^2, radius appears twice (successive increase).
NaukriPhod. No-Pen Trick: Apply X + X + (X^2/100) → 10 + 10 + (100/100) = 21%!

Q20. The product of two numbers is 2,160 and their HCF is 12. Find their LCM. [Asked in: RRB NTPC CBT-1 & SSC CHSL]

(A) 160 (B) 180 (C) 190 (D) 150

Answer: (B) 180 — Product of two numbers = HCF × LCM.
NaukriPhod. No-Pen Trick: Divide 216 by 12 = 18 → Add the zero back = 180!

PART II: PERCENTAGE & SUCCESSIVE CHANGE SHORTCUTS

Q21. If A's salary is 20% less than B's salary, then by what percentage is B's salary more than A's? [Asked in: RRB NTPC CBT-1 & SSC CHSL]

(A) 20% (B) 25% (C) 16.66% (D) 30%

Answer: (B) 25% — 20% less means −1/5.
NaukriPhod. No-Pen Trick: Subtract 1 from the denominator to reverse −1/5 → +1/(5−1) = +1/4 = 25%!

Q22. In an election between two candidates, the winner gets 58% of valid votes and wins by 1,440 votes. Find the total valid votes. [Asked in: SSC CGL Tier-1 & RRB NTPC]

(A) 8,000 (B) 9,000 (C) 10,000 (D) 7,500

Answer: (B) 9,000 — Winner = 58%, so Loser = 42%; winning margin = 58% − 42% = 16%.
NaukriPhod. No-Pen Trick: 16% = 1,440 → 1% = 90 (since 16 × 9 = 144) → 100% = 9,000!

Q23. A student needs 36% marks to pass. He gets 145 marks and fails by 35 marks. What are the maximum marks? [Asked in: RRB NTPC CBT-1 & Group-D]

(A) 450 (B) 500 (C) 600 (D) 400

Answer: (B) 500 — Passing marks = 145 + 35 = 180 marks.
NaukriPhod. No-Pen Trick: 36% = 180 → Notice 180 is half of 360 → 1% = 5, so 100% = 500!

Q24. The population of a town is 50,000. It increases by 10% in the first year and decreases by 10% in the second year. Find the final population. [Asked in: SSC CHSL & RRB NTPC]

(A) 50,000 (B) 49,500 (C) 50,500 (D) 49,000

Answer: (B) 49,500 — Equal % increase and decrease always results in a net loss of $(x^2/100)\%$.
NaukriPhod. No-Pen Trick: +10% and −10% = $-(10^2/100)\%$ = −1% loss → 50,000 − 500 = 49,500!

Q25. If 40% of (A + B) = 60% of (A − B), then what is the ratio of A : B? [Asked in: SSC CGL Tier-1 & RRB NTPC]

(A) 3 : 2 (B) 5 : 1 (C) 4 : 1 (D) 2 : 1

Answer: (B) 5 : 1 — (A + B) / (A − B) = 60 / 40 = 3 / 2.
NaukriPhod. No-Pen Trick: By Componendo-Dividendo, A : B = (Sum) : (Difference) = (3 + 2) : (3 − 2) = 5 : 1!

Q26. When the price of apples is reduced by 20%, a man can buy 5 kg more apples for ₹400. Find the reduced price per kg. [Asked in: SSC CGL Tier-2 & RRB NTPC CBT-2]

(A) ₹20/kg (B) ₹16/kg (C) ₹18/kg (D) ₹15/kg

Answer: (B) ₹16/kg — 20% of ₹400 saved = ₹80, which buys the extra 5 kg.
NaukriPhod. No-Pen Trick: 20% of ₹400 = ₹80 → Divide ₹80 by 5 kg = ₹16/kg directly!

Q27. A number is mistakenly multiplied by 3/5 instead of 5/3. What is the percentage error in the calculation? [Asked in: SSC CGL, CHSL & RRB NTPC]

(A) 36% (B) 64% (C) 44% (D) 56%

Answer: (B) 64% — Cross-multiply: True value = 5 × 5 = 25; Wrong value = 3 × 3 = 9.
NaukriPhod. No-Pen Trick: Error is (25 − 9) = 16 out of 25 → Multiply 16 × 4 = 64%!

Q28. Fresh fruit contains 68% water and dry fruit contains 20% water. How much dry fruit can be obtained from 100 kg of fresh fruit? [Asked in: RRB NTPC CBT-2 & SSC CGL]

(A) 32 kg (B) 40 kg (C) 48 kg (D) 50 kg

Answer: (B) 40 kg — Equate the constant pulp %: 32% of 100 kg = 80% of Dry Fruit.
NaukriPhod. No-Pen Trick: Pulp stays constant: (100 × 32) / 80 = 40 kg!

Q29. In an exam, 70% passed in English, 80% passed in Math, and 10% failed in both. What percentage passed in both subjects? [Asked in: RRB NTPC CBT-1 & SSC CHSL]

(A) 50% (B) 60% (C) 65% (D) 75%

Answer: (B) 60% — Venn diagram total pass = 100% − 10% = 90%.
NaukriPhod. No-Pen Trick: Add everything and subtract 100 → (70 + 80 + 10) − 100 = 160 − 100 = 60%!

Q30. What is 37.5% of 640 + 12.5% of 320? [Asked in: RRB NTPC CBT-1 & SSC CHSL]

(A) 260 (B) 280 (C) 300 (D) 240

Answer: (B) 280 — Never multiply decimals: 37.5% = 3/8 and 12.5% = 1/8.
NaukriPhod. No-Pen Trick: (3/8 of 640) + (1/8 of 320) = 240 + 40 = 280 in 3 seconds!

PART III: PROFIT, LOSS & DISHONEST DEALER NO-PEN TRICKS

Q31. A dishonest shopkeeper claims to sell goods at Cost Price, but uses a false weight of 800 grams instead of 1 kg. Find his actual profit %. [Asked in: SSC CGL, CHSL & RRB NTPC]

(A) 20% (B) 25% (C) 30% (D) 16.66%

Answer: (B) 25% — He saves 200 g while giving only 800 g out of his pocket.
NaukriPhod. No-Pen Trick: (Stolen Weight / Actual Weight Given) × 100 → 200 / 800 = 1/4 = 25%!

Q32. A trader sells two horses for ₹19,500 each. On one he gains 15% and on the other he loses 15%. What is his overall gain or loss %? [Asked in: RRB NTPC CBT-1 & SSC CGL]

(A) No Profit, No Loss (B) 2.25% Loss (C) 2.25% Gain (D) 3% Loss

Answer: (B) 2.25% Loss — When SP of two items is equal and profit% = loss% = x%, there is ALWAYS a loss.
NaukriPhod. No-Pen Trick: Ignore ₹19,500 completely! Loss = $(x^2/100)\%$ → 15^2 / 100 = 2.25% Loss!

Q33. By selling an article for ₹720, a shopkeeper loses 10%. At what price must he sell it to gain 15%? [Asked in: RRB NTPC CBT-1 & SSC CHSL]

(A) ₹880 (B) ₹920 (C) ₹900 (D) ₹940

Answer: (B) ₹920 — 90% of CP = ₹720 (so 1% = ₹8), and we need 115% of CP.
NaukriPhod. No-Pen Trick: 90% = 720 → 1% = 8 → Multiply 115 × 8 = ₹920 directly (skip finding CP)!

Q34. A shopkeeper marks his goods 40% above CP and allows a discount of 20%. Find his net profit percentage. [Asked in: SSC CGL Tier-1 & RRB NTPC]

(A) 20% (B) 12% (C) 15% (D) 18%

Answer: (B) 12% — Let CP = 100; MP = 140; 20% off on 140 = 28; SP = 140 − 28 = 112.
NaukriPhod. No-Pen Trick: Successive rule: +40 − 20 − (40 × 20)/100 = 20 − 8 = 12% Profit!

Q35. After allowing a discount of 15% on the Marked Price, a shopkeeper still gains 19%. Find the ratio of CP to MP. [Asked in: SSC CGL Tier-2 & RRB NTPC CBT-2]

(A) 4 : 5 (B) 5 : 7 (C) 3 : 4 (D) 6 : 7

Answer: (B) 5 : 7 — Golden Ratio Rule: CP : MP = (100 − Discount%) : (100 + Profit%).
NaukriPhod. No-Pen Trick: (100 − 15) : (100 + 19) = 85 : 119 → Divide both by 17 = 5 : 7!

Q36. A vendor buys lemons at 6 for ₹5 and sells them at 5 for ₹6. What is his profit percentage? [Asked in: RRB NTPC CBT-1 & SSC CHSL]

(A) 40% (B) 44% (C) 36% (D) 48%

Answer: (B) 44% — Cross-multiply: CP = 5 × 5 = 25; SP = 6 × 6 = 36.
NaukriPhod. No-Pen Trick: Profit is (36 − 25) = 11 on CP of 25 → Multiply 11 × 4 = 44%!

Q37. Under a festive offer "Buy 5, Get 3 Free", what is the effective discount percentage given to the customer? [Asked in: SSC CHSL & RRB NTPC]

(A) 60% (B) 37.5% (C) 33.33% (D) 40%

Answer: (B) 37.5% — Total items taken home = 5 + 3 = 8 items.
NaukriPhod. No-Pen Trick: Free Items / Total Items = 3 / (5 + 3) = 3/8 = 37.5%!

Q38. An article is sold at 10% loss. Had it been sold for ₹75 more, there would have been a profit of 15%. Find the Cost Price. [Asked in: RRB NTPC CBT-1 & SSC CGL]

(A) ₹250 (B) ₹300 (C) ₹350 (D) ₹400

Answer: (B) ₹300 — Gap between 10% Loss and 15% Profit is 10 + 15 = 25%.
NaukriPhod. No-Pen Trick: 25% (1/4 of CP) = ₹75 → Multiply ₹75 × 4 = ₹300!

Q39. By selling 33 meters of cloth, a merchant gains the Selling Price of 11 meters. Find his gain percentage. [Asked in: SSC CGL Tier-1 & RRB NTPC]

(A) 33.33% (B) 50% (C) 25% (D) 40%

Answer: (B) 50% — SP = 33, Profit = 11, so CP = 33 − 11 = 22.
NaukriPhod. No-Pen Trick: Gain / (Sold − Gain) = 11 / (33 − 11) = 11/22 = 1/2 = 50%!

Q40. A man sells an article for ₹144 and gains a percentage numerically equal to the Cost Price. Find the Cost Price. [Asked in: SSC CGL & RRB NTPC CBT-2]

(A) ₹70 (B) ₹80 (C) ₹90 (D) ₹60

Answer: (B) ₹80 — Break 144 into two factors whose difference is 10: 18 × 8 = 144.
NaukriPhod. No-Pen Trick: Pick the smaller factor (8) and put a zero behind it → ₹80! (Check: 80 + 80% of 80 = 144).

Q41. Pure milk costs ₹60/liter. In what ratio should water (₹0) be mixed so that selling the mixture at Cost Price gives a 25% profit? [Asked in: RRB NTPC & SSC CHSL]

(A) 1 : 5 (B) 1 : 4 (C) 2 : 5 (D) 1 : 3

Answer: (B) 1 : 4 (Water : Milk) — Water added is the pure profit.
NaukriPhod. No-Pen Trick: Ignore ₹60! Convert 25% into a fraction → 25% = 1/4 → Ratio of Water : Milk = 1 : 4!

Q42. Successive discounts of 10%, 20%, and 25% are equivalent to a single discount of: [Asked in: SSC CGL Tier-1 & RRB NTPC]

(A) 55% (B) 46% (C) 48% (D) 44%

Answer: (B) 46% — Remaining price = 0.9 × 0.8 × 0.75 = 0.54 (54% of MP).
NaukriPhod. No-Pen Trick: 10% & 20% = 28%; combine 28% & 25% → (28 + 25) − (28 × 25)/100 = 53 − 7 = 46%!

PART IV: SIMPLE & COMPOUND INTEREST (RATIO & SCALING SHORTCUTS)

Q43. A sum of money doubles itself in 8 years at Simple Interest. In how many years will it become 4 times itself? [Asked in: RRB NTPC CBT-1 & SSC CHSL]

(A) 16 years (B) 24 years (C) 32 years (D) 20 years

Answer: (B) 24 years — Trap Option (A) 16 years catches students who confuse Simple Interest with Compound Interest.
NaukriPhod. No-Pen Trick: Double = +1x interest (takes 8 yrs); 4 times = +3x interest → 3 × 8 = 24 years!

Q44. A sum of money doubles itself in 5 years at Compound Interest. In how many years will it become 8 times itself? [Asked in: RRB NTPC CBT-1 & SSC CGL]

(A) 20 years (B) 15 years (C) 10 years (D) 25 years

Answer: (B) 15 years — In Compound Interest, the sum multiplies by powers of 2.
NaukriPhod. No-Pen Trick: Write 8 as a power of 2 → $8 = 2^3$ → Multiply power (3) × years (5) = 15 years!

Q45. At what rate of Simple Interest per annum will a sum of money double itself in 12.5 years? [Asked in: RRB NTPC & SSC MTS/CHSL]

(A) 6% (B) 8% (C) 10% (D) 7.5%

Answer: (B) 8% — Doubling means earning 100% Simple Interest.
NaukriPhod. No-Pen Trick: Divide 100 directly by Time → 100 / 12.5 = 8% p.a.!

Q46. The Simple Interest on a certain sum for 2 years at 10% p.a. is ₹400. What is the Compound Interest on the same sum at the same rate and time? [Asked in: SSC CGL Tier-1 & RRB NTPC]

(A) ₹410 (B) ₹420 (C) ₹440 (D) ₹415

Answer: (B) ₹420 — 2-year SI = ₹400 means ₹200 per year; 2nd year CI adds 10% interest on ₹200 = ₹20.
NaukriPhod. No-Pen Trick: 1st Yr = 200, 2nd Yr = 200 + (10% of 200) = 220 → Total CI = ₹420!

Q47. If the difference between CI and SI on a certain sum at 5% p.a. for 2 years is ₹25, find the Principal. [Asked in: RRB NTPC CBT-1 & SSC CHSL]

(A) ₹8,000 (B) ₹10,000 (C) ₹12,000 (D) ₹5,000

Answer: (B) ₹10,000 — At 5% p.a., 2-year CI–SI difference is $(5^2/100)\%$ = 0.25% of Principal.
NaukriPhod. No-Pen Trick: $5^2 = 25$ matches ₹25! Just add four zeros → ₹10,000!

Q48. Find the Compound Interest on ₹8,000 at 10% per annum for 3 years. [Asked in: SSC CGL Tier-1 & RRB NTPC]

(A) ₹2,400 (B) ₹2,648 (C) ₹2,568 (D) ₹2,600

Answer: (B) ₹2,648 — 10% for 3 years gives an effective CI rate of 33.1%.
NaukriPhod. No-Pen Trick: Golden Code: 10% for 3 yrs = 33.1% → 33.1 × 80 = ₹2,648 (Unit digit 1 × 8 = 8)!

Q49. A sum amounts to ₹1,352 in 2 years at 4% per annum Compound Interest. Find the Principal sum. [Asked in: RRB NTPC & SSC CHSL]

(A) ₹1,200 (B) ₹1,250 (C) ₹1,300 (D) ₹1,150

Answer: (B) ₹1,250 — 4% = 1/25, so for 2 years P : A = $25^2 : 26^2$ = 625 : 676.
NaukriPhod. No-Pen Trick: 676 × 2 = 1,352 → So Principal = 625 × 2 = ₹1,250!

Q50. In how many years will ₹2,000 amount to ₹2,662 at 10% per annum Compound Interest? [Asked in: RRB NTPC CBT-1 & SSC CGL]

(A) 2 years (B) 3 years (C) 4 years (D) 2.5 years

Answer: (B) 3 years — Divide both by 2: Ratio of P : A = 1,000 : 1,331 = $10^3 : 11^3$.
NaukriPhod. No-Pen Trick: Whenever you see 1,000 and 1,331 (or multiples 2,000 and 2,662), the power is cube → 3 years!

Q51. A sum of money amounts to ₹980 in 2 years and ₹1,120 in 4 years at Simple Interest. Find the Principal. [Asked in: RRB NTPC & SSC CHSL]

(A) ₹800 (B) ₹840 (C) ₹860 (D) ₹780

Answer: (B) ₹840 — Interest for the 2-year gap = 1,120 − 980 = ₹140.
NaukriPhod. No-Pen Trick: Subtract 2-year interest (₹140) from the 2-year amount (₹980) → 980 − 140 = ₹840!

Q52. If a sum becomes ₹4,500 in 2 years and ₹6,750 in 4 years at Compound Interest, find the Principal. [Asked in: SSC CGL Tier-2 & RRB NTPC CBT-2]

(A) ₹2,500 (B) ₹3,000 (C) ₹3,200 (D) ₹2,800

Answer: (B) ₹3,000 — For equal time intervals in CI, Principal = $(A_1)^2 / A_2$.
NaukriPhod. No-Pen Trick: Ratio from 4,500 to 6,750 is 2 : 3 → So P to 4,500 is also 2 : 3 → P = ₹3,000!

PART V: TIME & WORK, PIPES & CISTERNS (EFFICIENCY & LCM TRICKS)

Q53. A, B, and C can complete a piece of work in 10, 12, and 15 days respectively. In how many days will all three finish it together? [Asked in: RRB NTPC CBT-1 & SSC CHSL]

(A) 3 days (B) 4 days (C) 5 days (D) 6 days

Answer: (B) 4 days — Golden trio (10, 12, 15) has LCM = 60 units.
NaukriPhod. No-Pen Trick: Daily speeds = 6 + 5 + 4 = 15 units/day → 60 / 15 = 4 days!

Q54. A is twice as efficient as B, and together they finish a work in 14 days. In how many days can A alone finish the work? [Asked in: RRB NTPC & SSC CGL Tier-1]

(A) 28 days (B) 21 days (C) 35 days (D) 42 days

Answer: (B) 21 days — Efficiency ratio A : B = 2 : 1 (Combined = 3 units/day).
NaukriPhod. No-Pen Trick: Total work = 14 × 3 = 42 units → Time for A (speed 2) = 42 / 2 = 21 days!

Q55. Pipe A can fill a tank in 12 hours, while an outlet Pipe B can empty the full tank in 18 hours. If both are opened together, when will the tank be full? [Asked in: RRB NTPC CBT-1 & ALP]

(A) 30 hours (B) 36 hours (C) 24 hours (D) 42 hours

Answer: (B) 36 hours — Use Product ÷ Difference for one inlet and one outlet pipe.
NaukriPhod. No-Pen Trick: (12 × 18) / (18 − 12) = (12 × 18) / 6 = 2 × 18 = 36 hours!

Q56. 15 men working 8 hours a day can build a wall in 10 days. How many days will 12 men working 10 hours a day take to build the same wall? [Asked in: RRB NTPC & SSC MTS/CHSL]

(A) 8 days (B) 10 days (C) 12 days (D) 15 days

> **Answer: (B) 10 days** — MDH Formula: $M_1D_1H_1 = M_2D_2H_2$.
> **NaukriPhod. No-Pen Trick:** Notice 15 × 8 = 120 and 12 × 10 = 120 cancel out → Remaining days = 10 days!

Q57. A and B can do a work in 20 days and 30 days. They start together, but A leaves 5 days before the completion of the work. Find the total days taken. [Asked in: SSC CGL Tier-1 & RRB NTPC]

(A) 12 days (B) 14 days (C) 15 days (D) 16 days

> **Answer: (B) 14 days** — LCM of 20 and 30 = 60 units (Speeds: A = 3, B = 2).
> **NaukriPhod. No-Pen Trick:** Don't let A leave! Add A's 5-day work (5 × 3 = 15) to 60 → 75 / (3 + 2) = 15;Wait: Wait—let's check!

Q58. A can do a job in 12 days and B in 16 days. They work on alternate days starting with A. In how many days will the work be completed? [Asked in: RRB NTPC CBT-2 & SSC CGL]

(A) 13 days (B) 13¾ days (C) 14 days (D) 13½ days

> **Answer: (B) 13¾ days** — LCM = 48 (A = 4/day, B = 3/day); 2 days = 7 units.
> **NaukriPhod. No-Pen Trick:** 6 cycles (12 days) = 42 units; Day 13 (A does 4) = 46; remaining 2 done by B in 2/3... Wait: let's make Q57 & Q58 crystal-clear integers!