Quantitative Aptitude

**1. Simplification**

**Q:** 24+366×224 + \frac{36}{6} \times 224+636​×2  
**Solution:**  
=24+6×2=24+12=36= 24 + 6 \times 2 = 24 + 12 = \boxed{36}=24+6×2=24+12=36​

**2. Approximation**

**Q:** 82≈?\sqrt{82} \approx ?82​≈?  
**Solution:**  
81=9\sqrt{81} = 981​=9, 82≈9.05\sqrt{82} \approx 9.0582​≈9.05, so approx = 9\boxed{9}9​

**3. Quadratic Equation**

**Q:** Solve: x2−7x+12=0x^2 - 7x + 12 = 0x2−7x+12=0  
**Solution:**  
Factor: (x−3)(x−4)=0(x-3)(x-4)=0(x−3)(x−4)=0 ⇒ x=3,4x=3,4x=3,4  
**Answer:** 3,4\boxed{3, 4}3,4​

**4. Percentage**

**Q:** Increase ₹400 by 25%.  
**Solution:**  
25% of 400 = ₹100 ⇒ ₹400 + ₹100 = ₹\boxed{500}

**5. HCF and LCM**

**Q:** Find HCF of 18 and 24.  
**Solution:**  
Factors of 18 = 2 × 3², 24 = 2³ × 3  
HCF = 2 × 3 = 6\boxed{6}6​

**6. Ratio & Proportion**

**Q:** Divide ₹600 in ratio 2:3  
**Solution:**  
Sum = 2+3=5 ⇒ ₹600 ÷ 5 = ₹120  
⇒ Parts: 2×120 = ₹240, 3×120 = ₹360  
**Answer:** ₹\boxed{240}, ₹\boxed{360}

**7. Profit & Loss**

**Q:** CP = ₹80, Profit = 25%. Find SP.  
**Solution:**  
SP = CP × (1 + 25/100) = 80 × 1.25 = ₹\boxed{100}

**8. Time & Distance**

**Q:** Speed = 60 km/h, Time = 2 hours ⇒ Distance = ?  
**Solution:**  
Distance = 60 × 2 = 120 km\boxed{120 \text{ km}}120 km​

**9. Average**

**Q:** Avg of 5, 10, 15 = ?  
**Solution:**  
Sum = 30 ⇒ 30 ÷ 3 = 10\boxed{10}10​

**10. Simple Interest**

**Q:** P = ₹1000, R = 5%, T = 2 yrs  
**SI = ?**  
**Solution:**  
SI = PRT/100 = (1000×5×2)/100 = ₹\boxed{100}

**11. Compound Interest**

**Q:** P = ₹1000, R = 10%, T = 2 yrs  
**Solution:**  
CI = P(1 + r/100)² − P = 1000(1.1)² − 1000 = 1210 − 1000 = ₹\boxed{210}

**12. Mensuration**

**Q:** Area of circle, radius = 7 cm  
**Solution:**  
Area = πr² = 22/7 × 7 × 7 = 154 cm²\boxed{154 \text{ cm²}}154 cm²​

**13. Problems on Trains**

**Q:** Train length = 300m, speed = 60 km/h. Time to cross pole?  
**Solution:**  
Speed = 60×5/18 = 16.67 m/s  
Time = 300 / 16.67 ≈ 18 seconds\boxed{18 \text{ seconds}}18 seconds​

**14. Mixtures & Allegation**

**Q:** Mix milk and water in 3:1 ratio. In 80 L, milk = ?  
**Solution:**  
Milk = 3/(3+1) × 80 = 3/4 × 80 = 60 L\boxed{60 \text{ L}}60 L​

**15. Probability**

**Q:** One coin tossed. Probability of heads = ?  
**Solution:**  
Favorable outcomes = 1, total = 2  
P = 1/2 ⇒ 0.5\boxed{0.5}0.5​

**16. Permutation**

**Q:** Ways to arrange 3 letters from A, B, C, D?  
**Solution:**  
P(4,3) = 4 × 3 × 2 = 24\boxed{24}24​

**17. Combination**

**Q:** Choose 2 people from 6.  
**Solution:**  
C(6,2) = 6×5/2 = 15\boxed{15}15​

**18. Indices and Surds**

**Q:** (2³)² = ?  
**Solution:**  
= 2^(3×2) = 2⁶ = 64\boxed{64}64​

**19. Partnership**

**Q:** A:B = 2:3, Profit = ₹5000. B’s share?  
**Solution:**  
B’s share = 3/5 × 5000 = ₹\boxed{3000}

**20. Boats & Streams**

**Q:** Boat speed = 12, stream = 3. Find downstream speed.  
**Solution:**  
= 12 + 3 = 15 km/h\boxed{15 \text{ km/h}}15 km/h​

**21. Simplification**

**Q:** 2.5×4+3.5×22.5 \times 4 + 3.5 \times 22.5×4+3.5×2  
**Solution:**  
= 10 + 7 = 17\boxed{17}17​

**22. Approximation**

**Q:** 6259≈?\frac{625}{9} \approx ?9625​≈?  
**Solution:**  
= 69.44 ≈ 69\boxed{69}69​

**23. Percentage**

**Q:** What is 20% of 150?  
**Solution:**  
= 150 × 20/100 = 30\boxed{30}30​

**24. LCM**

**Q:** LCM of 12, 15 = ?  
**Solution:**  
Multiples: 12 → 12,24,36,48,60...  
15 → 15,30,45,60...  
LCM = 60\boxed{60}60​

**25. Ratio**

**Q:** A:B = 2:5. A = 40. Find B.  
**Solution:**  
If A = 2x = 40 ⇒ x = 20 ⇒ B = 5x = 100\boxed{100}100​

**1. Simplification**

**Q:** 45−12+6×345 - 12 + 6 \times 345−12+6×3  
**Solution:**  
= 45−12+18=33+18=5145 - 12 + 18 = 33 + 18 = \boxed{51}45−12+18=33+18=51​

**2. Approximation**

**Q:** 1984≈?\frac{198}{4} \approx ?4198​≈?  
**Solution:**  
= 49.5 ≈ 50\boxed{50}50​

**3. Quadratic Equation**

**Q:** Solve: x2+2x−15=0x^2 + 2x - 15 = 0x2+2x−15=0  
**Solution:**  
Factors: (x+5)(x−3)=0(x+5)(x-3)=0(x+5)(x−3)=0 ⇒ x=−5,3x=-5, 3x=−5,3  
**Answer:** −5,3\boxed{-5, 3}−5,3​

**4. Percentage**

**Q:** 30% of ₹900 = ?  
**Solution:**  
= ₹900 × 30/100 = ₹\boxed{270}

**5. HCF and LCM**

**Q:** HCF of 16 and 28 = ?  
**Solution:**  
Factors of 16 = 2⁴, 28 = 2² × 7 ⇒ HCF = 2² = 4\boxed{4}4​

**6. Ratio & Proportion**

**Q:** Find x: 5:x=10:305 : x = 10 : 305:x=10:30  
**Solution:**  
Cross-multiply: 5×30=x×105×30 = x×105×30=x×10 ⇒ x=150/10=15x = 150/10 = \boxed{15}x=150/10=15​

**7. Profit & Loss**

**Q:** SP = ₹240, Profit = 20%. Find CP.  
**Solution:**  
CP = SP / 1.20 = ₹240 / 1.2 = ₹\boxed{200}

**8. Time & Distance**

**Q:** Distance = 90 km, Speed = 30 km/h. Time = ?  
**Solution:**  
= 90 / 30 = 3 hours\boxed{3 \text{ hours}}3 hours​

**9. Average**

**Q:** Average of 8, 12, 16 = ?  
**Solution:**  
Sum = 36 ⇒ Avg = 36 / 3 = 12\boxed{12}12​

**10. Simple Interest**

**Q:** P = ₹1500, R = 4%, T = 3 yrs  
**Solution:**  
SI = (1500 × 4 × 3) / 100 = ₹\boxed{180}

**11. Compound Interest**

**Q:** P = ₹2000, R = 5%, T = 2 yrs  
**Solution:**  
CI = 2000 × (1.05)² − 2000 = 2000 × 1.1025 − 2000 = ₹\boxed{205}

**12. Mensuration**

**Q:** Area of square, side = 9 cm  
**Solution:**  
Area = side² = 9² = 81 cm²\boxed{81 \text{ cm²}}81 cm²​

**13. Problems on Trains**

**Q:** Train = 150m, speed = 54 km/h. Time to cross pole?  
**Solution:**  
Speed = 54 × 5/18 = 15 m/s  
Time = 150 / 15 = 10 sec\boxed{10 \text{ sec}}10 sec​

**14. Mixtures & Allegation**

**Q:** Mix ₹60/kg tea with ₹100/kg tea to get ₹80/kg. Ratio = ?  
**Solution:**  
100 − 80 = 20, 80 − 60 = 20 ⇒ Ratio = 1:1  
**Answer:** 1:1\boxed{1:1}1:1​

**15. Probability**

**Q:** 1 die rolled. P(even number) = ?  
**Solution:**  
Even = {2,4,6} ⇒ P = 3/6 = 1/2\boxed{1/2}1/2​

**16. Permutation**

**Q:** Arrange 4 letters out of 6 (ABCDEF)  
**Solution:**  
P(6,4) = 6×5×4×3 = 360\boxed{360}360​

**17. Combination**

**Q:** Choose 3 out of 7  
**Solution:**  
C(7,3) = 7×6×5 / 3×2×1 = 35\boxed{35}35​

**18. Indices and Surds**

**Q:** 93/2=?9^{3/2} = ?93/2=?  
**Solution:**  
= (9)3=33=27(\sqrt{9})^3 = 3^3 = \boxed{27}(9​)3=33=27​

**19. Partnership**

**Q:** A:B = 5:3, profit = ₹8000. A's share = ?  
**Solution:**  
Total parts = 5+3=8 ⇒ A = 5/8 × 8000 = ₹\boxed{5000}

**20. Boats & Streams**

**Q:** Boat speed = 14, stream = 4. Upstream speed = ?  
**Solution:**  
= 14 − 4 = 10 km/h\boxed{10 \text{ km/h}}10 km/h​

**21. Simplification**

**Q:** 100−(3×4)+8100 - (3 \times 4) + 8100−(3×4)+8  
**Solution:**  
= 100 - 12 + 8 = 96\boxed{96}96​

**22. Approximation**

**Q:** 3137≈?\frac{313}{7} \approx ?7313​≈?  
**Solution:**  
≈ 44.7 ⇒ 45\boxed{45}45​

**23. Percentage**

**Q:** What % of 160 is 40?  
**Solution:**  
= (40/160)×100 = 25%\boxed{25\%}25%​

**24. LCM**

**Q:** LCM of 5 and 12 = ?  
**Solution:**  
Multiples of 5: 5,10,15,...  
12: 12,24,... LCM = 60\boxed{60}60​

**25. Ratio**

**Q:** A:B = 4:7, B = 63 ⇒ A = ?  
**Solution:**  
If 7x = 63 ⇒ x = 9 ⇒ A = 4x = 36\boxed{36}36​

**1. Simplification**

**Q:** 125−(52+10)125 - (5^2 + 10)125−(52+10)  
**Solution:**  
52=255^2 = 2552=25, so: 125−(25+10)=125−35=90125 - (25 + 10) = 125 - 35 = \boxed{90}125−(25+10)=125−35=90​

**2. Approximation**

**Q:** 50≈?\sqrt{50} \approx ?50​≈?  
**Solution:**  
49=7\sqrt{49} = 749​=7, so 50≈7.1\sqrt{50} \approx \boxed{7.1}50​≈7.1​

**3. Quadratic Equation**

**Q:** Solve: x2−9x+20=0x^2 - 9x + 20 = 0x2−9x+20=0  
**Solution:**  
Factors of 20: 4 and 5 → (x−4)(x−5)=0 ⇒ x=4,5x = 4, 5x=4,5  
**Answer:** 4,5\boxed{4, 5}4,5​

**4. Percentage**

**Q:** What is 15% of 640?  
**Solution:**  
= 640 × 15/100 = 96  
**Answer:** 96\boxed{96}96​

**5. HCF and LCM**

**Q:** Find LCM of 10 and 15.  
**Solution:**  
10 = 2×5, 15 = 3×5 ⇒ LCM = 2×3×5 = 30\boxed{30}30​

**6. Ratio & Proportion**

**Q:** Divide ₹420 in ratio 5:2  
**Solution:**  
Sum = 7 parts → 1 part = ₹60  
5 parts = ₹300, 2 parts = ₹120  
**Answer:** ₹\boxed{300}, ₹\boxed{120}

**7. Profit & Loss**

**Q:** CP = ₹80, SP = ₹100 ⇒ Profit% = ?  
**Solution:**  
Profit = 20, % = 20/80 × 100 = 25%\boxed{25\%}25%​

**8. Time & Distance**

**Q:** Speed = 40 km/h, Time = 3.5 hrs ⇒ Distance = ?  
**Solution:**  
= 40 × 3.5 = 140 km\boxed{140 \text{ km}}140 km​

**9. Average**

**Q:** Avg of 14, 18, 22, 26 = ?  
**Solution:**  
Sum = 80, Avg = 80/4 = 20\boxed{20}20​

**10. Simple Interest**

**Q:** P = ₹2000, R = 6%, T = 4 yrs  
**Solution:**  
SI = 2000 × 6 × 4 / 100 = ₹\boxed{480}

**11. Compound Interest**

**Q:** P = ₹1000, R = 20%, T = 1 yr  
**Solution:**  
CI = P × (1 + R/100) − P = 1000 × 1.2 − 1000 = ₹\boxed{200}

**12. Mensuration**

**Q:** Volume of cube, side = 5 cm  
**Solution:**  
Volume = a³ = 5³ = 125 cm3\boxed{125 \text{ cm}^3}125 cm3​

**13. Problems on Trains**

**Q:** Train = 180 m, Speed = 72 km/h. Time to cross pole?  
**Solution:**  
Speed = 72 × 5/18 = 20 m/s ⇒ Time = 180 / 20 = 9 sec\boxed{9 \text{ sec}}9 sec​

**14. Mixtures & Allegation**

**Q:** 2 liquids A and B in ratio 3:2, total = 50L. Find B’s part.  
**Solution:**  
Total parts = 5 ⇒ B = 2/5 × 50 = 20 L\boxed{20 \text{ L}}20 L​

**15. Probability**

**Q:** One card from 52 cards. P(ace) = ?  
**Solution:**  
Favorable = 4 ⇒ P = 4/52 = 1/13\boxed{1/13}1/13​

**16. Permutation**

**Q:** Arrange 2 people out of 5.  
**Solution:**  
P(5,2) = 5×4 = 20\boxed{20}20​

**17. Combination**

**Q:** Choose 2 balls from 4.  
**Solution:**  
C(4,2) = 4×3 / 2 = 6\boxed{6}6​

**18. Indices and Surds**

**Q:** (32)3=?(3^2)^3 = ?(32)3=?  
**Solution:**  
= 32×3=36=7293^{2×3} = 3^6 = \boxed{729}32×3=36=729​

**19. Partnership**

**Q:** A:B = 3:2, profit = ₹7500 ⇒ B’s share = ?  
**Solution:**  
Total = 5 parts ⇒ B = 2/5 × 7500 = ₹\boxed{3000}

**20. Boats & Streams**

**Q:** Boat = 10, Stream = 2 ⇒ Downstream speed = ?  
**Solution:**  
= 10 + 2 = 12 km/h\boxed{12 \text{ km/h}}12 km/h​

**21. Simplification**

**Q:** 48÷4+5×348 ÷ 4 + 5 \times 348÷4+5×3  
**Solution:**  
= 12 + 15 = 27\boxed{27}27​

**22. Approximation**

**Q:** 2827≈?\frac{282}{7} \approx ?7282​≈?  
**Solution:**  
= 40.28 ≈ 40\boxed{40}40​

**23. Percentage**

**Q:** Increase 160 by 12.5%  
**Solution:**  
= 160 + (160 × 12.5/100) = 160 + 20 = 180\boxed{180}180​

**24. LCM**

**Q:** LCM of 9, 12 = ?  
**Solution:**  
Multiples: 36 common ⇒ 36\boxed{36}36​

**25. Ratio**

**Q:** If A:B = 3:4 and B:C = 2:5, find A:C  
**Solution:**  
A:B = 3:4, B:C = 2:5 ⇒ make B same  
LCM of 4 and 2 = 4 ⇒  
A:B = 3:4, B:C = 4:10 ⇒ A:C = 3:10\boxed{3:10}3:10​

**1. Simplification**

**Q:** 36+12÷4×336 + 12 \div 4 \times 336+12÷4×3  
**Solution:**  
Division and multiplication first:  
= 12 ÷ 4 = 3, 3 × 3 = 9  
Then add: 36 + 9 = 45\boxed{45}45​

**2. Approximation**

**Q:** 119≈?\sqrt{119} \approx ?119​≈?  
**Solution:**  
√121 = 11, so √119 ≈ 10.9\boxed{10.9}10.9​

**3. Quadratic Equation**

**Q:** Solve: x2−6x+9=0x^2 - 6x + 9 = 0x2−6x+9=0  
**Solution:**  
Perfect square: (x−3)2=0(x - 3)^2 = 0(x−3)2=0 ⇒ x=3x = \boxed{3}x=3​

**4. Percentage**

**Q:** A number is increased by 25% and becomes 150. What is the original number?  
**Solution:**  
Let original = x ⇒ x + 25%x = 150  
⇒ x × 1.25 = 150 ⇒ x = 150/1.25 = 120\boxed{120}120​

**5. HCF and LCM**

**Q:** HCF of 18 and 42 = ?  
**Solution:**  
18 = 2 × 3², 42 = 2 × 3 × 7 ⇒ HCF = 2 × 3 = 6\boxed{6}6​

**6. Ratio & Proportion**

**Q:** If A:B = 2:3 and B:C = 4:5, find A:B:C  
**Solution:**  
A:B = 2:3, B:C = 4:5  
Make B common: LCM of 3,4 = 12  
So: A:B = 8:12, B:C = 12:15  
⇒ A:B:C = 8:12:15\boxed{8:12:15}8:12:15​

**7. Profit & Loss**

**Q:** CP = ₹500, Loss = 10%. SP = ?  
**Solution:**  
SP = 90% of CP = 0.9 × 500 = ₹\boxed{450}

**8. Time & Distance**

**Q:** Speed = 60 km/h, Time = 2.5 hrs ⇒ Distance = ?  
**Solution:**  
= 60 × 2.5 = 150 km\boxed{150 \text{ km}}150 km​

**9. Average**

**Q:** Average of first 5 even numbers?  
**Solution:**  
Even numbers: 2, 4, 6, 8, 10  
Sum = 30 ⇒ Avg = 30/5 = 6\boxed{6}6​

**10. Simple Interest**

**Q:** P = ₹3000, R = 5%, T = 2 years  
**Solution:**  
SI = (3000 × 5 × 2) / 100 = ₹\boxed{300}

**11. Compound Interest**

**Q:** CI on ₹5000 at 10% for 2 years?  
**Solution:**  
CI = P[(1 + r/100)^t − 1]  
= 5000[(1.1)^2 − 1] = 5000(1.21 − 1) = 5000 × 0.21 = ₹\boxed{1050}

**12. Mensuration**

**Q:** Area of rectangle: length = 12 cm, width = 7 cm  
**Solution:**  
Area = l × w = 12 × 7 = 84 cm2\boxed{84 \text{ cm}^2}84 cm2​

**13. Problems on Trains**

**Q:** Train 210 m, speed 60 km/h. Time to cross a pole?  
**Solution:**  
Speed = 60 × 5/18 = 16.67 m/s  
Time = 210 / 16.67 ≈ 12.6 sec\boxed{12.6 \text{ sec}}12.6 sec​

**14. Mixtures & Allegation**

**Q:** Mix ₹20/l milk and ₹30/l water to get ₹28/l. Ratio?  
**Solution:**  
30 − 28 = 2, 28 − 20 = 8 ⇒ Ratio = 2:8 = 1:4\boxed{1:4}1:4​

**15. Probability**

**Q:** Toss 2 coins. Probability of 1 head = ?  
**Solution:**  
Outcomes = HH, HT, TH, TT  
1 head = HT, TH ⇒ 2/4 = 1/2\boxed{1/2}1/2​

**16. Permutation**

**Q:** How many ways to arrange letters of "CAT"?  
**Solution:**  
3! = 3×2×1 = 6\boxed{6}6​

**17. Combination**

**Q:** From 5 pens, choose 2  
**Solution:**  
C(5,2) = 5×4 / 2 = 10\boxed{10}10​

**18. Indices and Surds**

**Q:** (43)1/2=?(4^3)^{1/2} = ?(43)1/2=?  
**Solution:**  
= 43/2=(4)3=23=84^{3/2} = (\sqrt{4})^3 = 2^3 = \boxed{8}43/2=(4​)3=23=8​

**19. Partnership**

**Q:** A:B = 7:5, profit = ₹3600, find B’s share  
**Solution:**  
Total = 12 parts, B = 5/12 × 3600 = ₹\boxed{1500}

**20. Boats & Streams**

**Q:** Speed of boat = 15, stream = 3 ⇒ upstream = ?  
**Solution:**  
= 15 − 3 = 12 km/h\boxed{12 \text{ km/h}}12 km/h​

**21. Simplification**

**Q:** 23+32−52^3 + 3^2 - 523+32−5  
**Solution:**  
8 + 9 - 5 = 12\boxed{12}12​

**22. Approximation**

**Q:** 874÷29≈?874 \div 29 \approx ?874÷29≈?  
**Solution:**  
≈ 30  
**Answer:** 30\boxed{30}30​

**23. Percentage**

**Q:** What % is 18 of 60?  
**Solution:**  
= 18/60 × 100 = 30%\boxed{30\%}30%​

**24. LCM**

**Q:** LCM of 6, 8 = ?  
**Solution:**  
Multiples: 24  
**Answer:** 24\boxed{24}24​

**25. Ratio**

**Q:** Ratio of 120:80 simplified = ?  
**Solution:**  
= 3:2  
**Answer:** 3:2\boxed{3:2}3:2​

**1. Simplification**

**Q:** 64÷4+3×664 \div 4 + 3 \times 664÷4+3×6  
**Solution:**  
64 ÷ 4 = 16, 3 × 6 = 18 ⇒ 16 + 18 = **34\boxed{34}34​**

**2. Approximation**

**Q:** 982÷9.9≈?982 \div 9.9 \approx ?982÷9.9≈?  
**Solution:**  
≈ 982 ÷ 10 = **98\boxed{98}98​**

**3. Quadratic Equation**

**Q:** Solve: x2+5x+6=0x^2 + 5x + 6 = 0x2+5x+6=0  
**Solution:**  
Factors: (x + 2)(x + 3) ⇒ x = −2, −3  
**Answer:** −2,−3\boxed{-2, -3}−2,−3​

**4. Percentage**

**Q:** 30% of 250 = ?  
**Solution:**  
250 × 30/100 = 75  
**Answer:** 75\boxed{75}75​

**5. HCF and LCM**

**Q:** Find HCF of 36 and 60  
**Solution:**  
Factors: 36 = 2²×3², 60 = 2²×3×5 ⇒ HCF = 2²×3 = **12\boxed{12}12​**

**6. Ratio & Proportion**

**Q:** If 3 pens cost ₹45, what is cost of 7 pens?  
**Solution:**  
1 pen = ₹15 ⇒ 7 × 15 = **₹105\boxed{105}105​**

**7. Profit & Loss**

**Q:** CP = ₹200, SP = ₹250 ⇒ Profit% = ?  
**Solution:**  
Profit = ₹50 ⇒ (50/200)×100 = **25%\boxed{25\%}25%​**

**8. Time & Distance**

**Q:** Distance = 120 km, Speed = 60 km/h ⇒ Time = ?  
**Solution:**  
= 120 ÷ 60 = **2 hours\boxed{2 \text{ hours}}2 hours​**

**9. Average**

**Q:** Average of 16, 24, 20, 28 = ?  
**Solution:**  
Sum = 88 ⇒ Avg = 88/4 = **22\boxed{22}22​**

**10. Simple Interest**

**Q:** P = ₹5000, R = 8%, T = 1.5 yrs  
**Solution:**  
SI = (5000×8×1.5)/100 = ₹**600\boxed{600}600​**

**11. Compound Interest**

**Q:** P = ₹2000, R = 10%, T = 2 yrs  
**Solution:**  
Amount = 2000×(1.1)² = 2000×1.21 = 2420  
CI = 2420 − 2000 = ₹**420\boxed{420}420​**

**12. Mensuration**

**Q:** Area of circle, r = 7 cm (π = 22/7)  
**Solution:**  
A = πr² = (22/7)×7×7 = **154 cm2\boxed{154 \text{ cm}^2}154 cm2​**

**13. Problems on Trains**

**Q:** Train = 300 m, Speed = 90 km/h. Time to cross pole?  
**Solution:**  
Speed = 90×5/18 = 25 m/s ⇒ Time = 300 ÷ 25 = **12 sec\boxed{12 \text{ sec}}12 sec​**

**14. Mixtures & Allegation**

**Q:** Mix ₹24/kg and ₹36/kg to get ₹30/kg. Ratio?  
**Solution:**  
36−30=6, 30−24=6 ⇒ Ratio = 1:1 ⇒ **1:1\boxed{1:1}1:1​**

**15. Probability**

**Q:** One die thrown. P(even number) = ?  
**Solution:**  
Even = 2,4,6 ⇒ 3/6 = **1/2\boxed{1/2}1/2​**

**16. Permutation**

**Q:** Ways to arrange 4 different letters?  
**Solution:**  
= 4! = 24  
**Answer:** 24\boxed{24}24​

**17. Combination**

**Q:** Choose 3 from 6 people  
**Solution:**  
C(6,3) = 6×5×4 / (3×2×1) = **20\boxed{20}20​**

**18. Indices and Surds**

**Q:** 23×24=?2^3 × 2^4 = ?23×24=?  
**Solution:**  
= 23+4=27=1282^{3+4} = 2^7 = \boxed{128}23+4=27=128​

**19. Partnership**

**Q:** A:B = 2:3, profit = ₹10000 ⇒ A’s share?  
**Solution:**  
A = 2/5 × 10000 = ₹**4000\boxed{4000}4000​**

**20. Boats & Streams**

**Q:** Boat = 12, Stream = 4 ⇒ Upstream speed = ?  
**Solution:**  
= 12 − 4 = **8 km/h\boxed{8 \text{ km/h}}8 km/h​**

**21. Simplification**

**Q:** 50% of 120+30=?50\% \text{ of } 120 + 30 = ?50% of 120+30=?  
**Solution:**  
50% of 120 = 60 ⇒ 60 + 30 = **90\boxed{90}90​**

**22. Approximation**

**Q:** 479÷8≈?479 \div 8 \approx ?479÷8≈?  
**Solution:**  
≈ 480 ÷ 8 = **60\boxed{60}60​**

**23. Percentage**

**Q:** What is 40% more than 250?  
**Solution:**  
= 250 + (250×0.4) = 250 + 100 = **350\boxed{350}350​**

**24. LCM**

**Q:** LCM of 5, 10, and 15 = ?  
**Solution:**  
Multiples of 15 ⇒ LCM = **30\boxed{30}30​**

**25. Ratio**

**Q:** A:B = 6:5, B:C = 2:3 ⇒ A:B:C = ?  
**Solution:**  
Make B common: LCM of 5,2 = 10  
A:B = 12:10, B:C = 10:15 ⇒ A:B:C = **12:10:15\boxed{12:10:15}12:10:15​**

**1. Simplification**

**Q:** 45÷5+8×245 \div 5 + 8 \times 245÷5+8×2  
**Solution:**  
45 ÷ 5 = 9, 8 × 2 = 16 ⇒ 9 + 16 = **25\boxed{25}25​**

**2. Approximation**

**Q:** 388÷4.1≈?388 \div 4.1 \approx ?388÷4.1≈?  
**Solution:**  
≈ 388 ÷ 4 = **97\boxed{97}97​**

**3. Quadratic Equation**

**Q:** Solve: x2−10x+21=0x^2 - 10x + 21 = 0x2−10x+21=0  
**Solution:**  
(x - 3)(x - 7) = 0 ⇒ x = **3,7\boxed{3, 7}3,7​**

**4. Percentage**

**Q:** 15% of 480 = ?  
**Solution:**  
= 480 × 15/100 = **72\boxed{72}72​**

**5. HCF and LCM**

**Q:** HCF of 48 and 60 = ?  
**Solution:**  
48 = 2⁴ × 3, 60 = 2² × 3 × 5 ⇒ HCF = 2² × 3 = **12\boxed{12}12​**

**6. Ratio & Proportion**

**Q:** Ratio of 45 to 60  
**Solution:**  
= 3:4  
**Answer:** 3:4\boxed{3:4}3:4​

**7. Profit & Loss**

**Q:** SP = ₹840, Profit = 20%, CP = ?  
**Solution:**  
SP = 120% of CP ⇒ CP = 840 × 100 / 120 = ₹**700\boxed{700}700​**

**8. Time & Distance**

**Q:** Time to cover 180 km at 90 km/h = ?  
**Solution:**  
180 ÷ 90 = **2 hours\boxed{2 \text{ hours}}2 hours​**

**9. Average**

**Q:** Avg of 10, 15, 20, 25, 30 = ?  
**Solution:**  
Sum = 100 ⇒ Avg = 100 ÷ 5 = **20\boxed{20}20​**

**10. Simple Interest**

**Q:** P = ₹2500, R = 6%, T = 3 years  
**Solution:**  
SI = (2500×6×3)/100 = ₹**450\boxed{450}450​**

**11. Compound Interest**

**Q:** P = ₹4000, R = 5%, T = 2 years  
**Solution:**  
A = 4000 × (1.05)² = 4000 × 1.1025 = ₹4410  
CI = 4410 − 4000 = ₹**410\boxed{410}410​**

**12. Mensuration**

**Q:** Volume of cube, side = 5 cm  
**Solution:**  
= 53=125 cm35^3 = \boxed{125 \text{ cm}^3}53=125 cm3​

**13. Problems on Trains**

**Q:** Train = 180 m, speed = 54 km/h ⇒ Time to cross pole?  
**Solution:**  
Speed = 54 × 5/18 = 15 m/s ⇒ Time = 180 ÷ 15 = **12 sec\boxed{12 \text{ sec}}12 sec​**

**14. Mixtures & Allegation**

**Q:** Mix ₹60 and ₹30 to get ₹40 ⇒ Ratio?  
**Solution:**  
60 − 40 = 20, 40 − 30 = 10 ⇒ Ratio = 1:2  
**Answer:** 1:2\boxed{1:2}1:2​

**15. Probability**

**Q:** Probability of drawing a red card from a deck?  
**Solution:**  
Red cards = 26/52 = **1/2\boxed{1/2}1/2​**

**16. Permutation**

**Q:** Ways to arrange 5 books = ?  
**Solution:**  
= 5! = 120  
**Answer:** 120\boxed{120}120​

**17. Combination**

**Q:** C(7,3) = ?  
**Solution:**  
= 7×6×5 / 3×2×1 = **35\boxed{35}35​**

**18. Indices and Surds**

**Q:** (92)1/2=?(9^2)^{1/2} = ?(92)1/2=?  
**Solution:**  
= 81=9\sqrt{81} = \boxed{9}81​=9​

**19. Partnership**

**Q:** A:B = 3:2, profit = ₹2500 ⇒ B’s share?  
**Solution:**  
B = 2/5 × 2500 = ₹**1000\boxed{1000}1000​**

**20. Boats & Streams**

**Q:** Boat = 18 km/h, stream = 4 ⇒ Downstream speed = ?  
**Solution:**  
= 18 + 4 = **22 km/h\boxed{22 \text{ km/h}}22 km/h​**

**21. Simplification**

**Q:** 52+32−42=?5^2 + 3^2 - 4^2 = ?52+32−42=?  
**Solution:**  
25 + 9 − 16 = **18\boxed{18}18​**

**22. Approximation**

**Q:** 50≈?\sqrt{50} \approx ?50​≈?  
**Solution:**  
√49 = 7, √50 ≈ **7.1\boxed{7.1}7.1​**

**23. Percentage**

**Q:** What % of 80 is 24?  
**Solution:**  
= (24/80)×100 = **30%\boxed{30\%}30%​**

**24. LCM**

**Q:** LCM of 9 and 12 = ?  
**Solution:**  
= 36  
**Answer:** 36\boxed{36}36​

**25. Ratio**

**Q:** A:B = 5:6, B:C = 3:4 ⇒ A:B:C = ?  
**Solution:**  
Make B common: A:B = 15:18, B:C = 18:24 ⇒ A:B:C = **15:18:24\boxed{15:18:24}15:18:24​**