Quantitative Aptitude

1. Simplification

Q: $24+366\times224 + \frac{36}{6} \times 224+636\times2$
Solution:
$=24+6\times2=24+12=36= 24 + 6 \times 2 = 24 + 12 = \boxed{36}=24+6\times2=24+12=36$

---

2. Approximation

Q: $82\approx?\sqrt{82} \approx ?82\approx?$
Solution:
$81=9\sqrt{81} = 981=9$, $82\approx9.05\sqrt{82} \approx 9.0582\approx9.05$, so approx $= 9\boxed{9}9$

---

3. Quadratic Equation

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

---

4. Percentage

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

---

5. HCF and LCM

Q: Find HCF of 18 and 24.
Solution:
Factors of 18 = 2×3^2, 24 = $2^3 \times 3$
HCF = $2 \times 3 = 6\boxed{6}6$

---

6. Ratio & Proportion

Q: Divide ₹600 in ratio 2:3
Solution:
Sum = 2+3=5 $\Rightarrow$ ₹600 $\div$ 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: $(2^3)^2 = ?$
Solution:
$= 2^{(3 \times 2)} = 2^6 = 64$ $\boxed{64}$ 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: $2.5 \times 4 + 3.5 \times 2$ 2.5 \times 4 + 3.5 \times 2 2.5×4+3.5×2
Solution:
$= 10 + 7 = 17$ $\boxed{17}$ 17

---

22. Approximation

Q: $\frac{625}{9} \approx ?$ \frac{625}{9} \approx ? 625≈?
Solution:
$= 69.44 \approx 69$ $\boxed{69}$ 69

---

23. Percentage

Q: What is 20% of 150?
Solution:
$= 150 \times 20/100 = 30$ $\boxed{30}$ 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 $16 = 2^4$, $28 = 2^2 \times 7 \Rightarrow$ HCF $= 2^2 = 4$ $\boxed{4}$ 4

---

6. Ratio & Proportion

Q: Find x: $5:x=10:30$ $5 : x = 10 : 30$ $5:x=10:30$
Solution:
Cross-multiply: $5\times30=x\times10$ $5\times30 = x\times10$ $5\times30=x\times10 \Rightarrow x=150/10=15$ $x = 150/10 = \boxed{15}$ $x=150/10=15$

---

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 $\Rightarrow$ 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{ cm}^2}$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:
$= (40/160) \times 100 = 25\%$ $\boxed{25\%}$ 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 $7x = 63 \Rightarrow x = 9 \Rightarrow A = 4x = 36$ $\boxed{36}$ 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:
$P(5,2) = 5×4 = 20$

$$\boxed{20}$$

---

17. Combination

Q: Choose 2 balls from 4.
Solution:
$C(4,2) = 4×3 / 2 = 6$

$$\boxed{6}$$

---

18. Indices and Surds

Q: $(3^2)^3 = ?$
Solution:
$= 3^{2×3} = 3^6 = 729$

$$\boxed{729}$$

---

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

$$\boxed{12 \text{ km/h}}$$

---

21. Simplification

Q: $48 ÷ 4 + 5 \times 3$
Solution:
$= 12 + 15 = 27$

$$\boxed{27}$$

---

22. Approximation

Q: $\frac{282}{7} \approx ?$

Solution:
$= 40.28 \approx 40$ $\boxed{40}$

---

23. Percentage

Q: Increase 160 by 12.5%

Solution:
$= 160 + (160 \times 12.5/100) = 160 + 20 = 180$ $\boxed{180}$

---

24. LCM

Q: LCM of 9, 12 = ?

Solution:
Multiples: 36 common $\Rightarrow$ 36 $\boxed{36}$

---

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 $\Rightarrow$ make B same
LCM of 4 and 2 = 4 $\Rightarrow$
A:B = 3:4, B:C = 4:10 $\Rightarrow$ A:C = 3:10 $\boxed{3:10}$

---

1. Simplification

Q: $36 + 12 \div 4 \times 3$

Solution:
Division and multiplication first:
$= 12 \div 4 = 3, 3 \times 3 = 9$
Then add: $36 + 9 = 45$ $\boxed{45}$

---

2. Approximation

Q: $\sqrt{119} \approx ?$

Solution:
$\sqrt{121} = 11$, so $\sqrt{119} \approx 10.9$ $\boxed{10.9}$

---

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 = $\boxed{6}$

---

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 = $\boxed{84 \text{ cm}^2}$

---

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 ≈ $\boxed{12.6 \text{ sec}}$

---

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 = $\boxed{1:4}$

15. Probability

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

---

16. Permutation

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

---

17. Combination

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

---

18. Indices and Surds

Q: $(4^3)^{1/2} = ?$
Solution:
$= 4^{3/2} = (\sqrt{4})^3 = 2^3 = \boxed{8}$

---

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 $\Rightarrow$ upstream = ?
Solution:
$= 15 - 3 = \boxed{12 \text{ km/h}}$

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: $982 \div 9.9 \approx ?$
Solution:
$\approx 982 \div 10 = $ **$\boxed{98}$**

---

3. Quadratic Equation

Q: Solve: $x^2 + 5x + 6 = 0$
Solution:
Factors: $(x + 2)(x + 3) \Rightarrow x = -2, -3$
Answer: $\boxed{-2, -3}$

---

4. Percentage

Q: 30% of 250 = ?
Solution:
$250 \times 30/100 = 75$
Answer: $\boxed{75}$

---

5. HCF and LCM

Q: Find HCF of 36 and 60
Solution:
Factors: $36 = 2^2 \times 3^2$, $60 = 2^2 \times 3 \times 5 \Rightarrow$ HCF $= 2^2 \times 3 = $ **$\boxed{12}$**

---

6. Ratio & Proportion

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

---

7. Profit & Loss

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

---

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

---

2. Approximation

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

---

3. Quadratic Equation

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

---

4. Percentage

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

---

5. HCF and LCM

Q: HCF of 48 and 60 = ?
Solution:
$48 = 2^4 \times 3$, $60 = 2^2 \times 3 \times 5 \Rightarrow$ HCF $= 2^2 \times 3 =$ **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**