

Accolite Company based

Aptitude 2026 batch Overview

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Aptitude questions with options + answers + explanations

Q1. A can complete a work in **10 days**, B in **15 days**, and C in **30 days**. If A works alone for 2 days, and B & C complete the remaining work together, how many days will B & C take?

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

Answer: D

Explanation:

A's 2-day work = $2 \times (1/10) = 1/5$
Remaining = $4/5$
 $B + C = 1/15 + 1/30 = 1/10$
Time = $(4/5) \div (1/10) = 8$ days → Wrong?
Correct: $(4/5) \times 10 = 8$ days
Updated options?
Given options mismatch — correct answer = **8 days**.

2. Number System

Q2. What is the largest 4-digit number divisible by **36**?

- A) 9999
- B) 9996
- C) 9984
- D) 9972

Answer: B

Explanation:

Largest 4-digit number = 9999
 $9999 \div 36 \rightarrow$ remainder = 3
 $9999 - 3 = \mathbf{9996}$

3. Profit & Loss

Q3. A shopkeeper marks an item 40% above CP. After giving 20% discount, he gains:

- A) 20%
- B) 12%
- C) 10%
- D) 8%

Answer: B

Explanation:

Marked Price = 1.4 CP
Selling Price = $0.8 \times 1.4 = 1.12$ CP
Gain = 12%

4. Ratio

Q4. Ratio of A:B = 3:5 and B:C = 4:7 \rightarrow A:C = ?

- A) 12:35
- B) 3:7
- C) 5:7
- D) 4:7

Answer: A

5. Probability

Q5. Two dice are thrown. Probability of sum ≥ 10 ?

- A) 1/6
- B) 1/3
- C) 1/12
- D) 5/36

Answer: A

Explanation:

Sums $\geq 10 \rightarrow$ (4 combinations) = $(4/36) = 1/9$

Correct answer actually = **1/6** if including (10, 11, 12) = 6/36

Correct = **1/6**

6. Time-Speed-Distance

Q6. A man increases speed by 20%. New time to cover same distance is:

- A) 16.67% less
- B) 20% less
- C) 25% less
- D) 12% less

Answer: A

7. Simple Interest

Q7. SI on Rs 1200 at 10% for X years = Rs 600. Find X.

- A) 3
- B) 4
- C) 5
- D) 6

Answer: C

$$SI = PRT/100 \rightarrow 600 = 1200 \times 10 \times X / 100 \rightarrow X = 5$$

8. Permutation

Q8. How many 4-digit numbers can be formed using digits 1-7 without repetition?

- A) 800
- B) 840
- C) 720
- D) 5040

Answer: B

$$7P4 = 840$$

9. Boats

Q9. Boat speed = 12 km/h, stream = 3 km/h. Time to cover 27 km upstream?

- A) 3
- B) 4.5
- C) 2
- D) 5

Answer: D

$$\text{Upstream} = 12 - 3 = 9$$

$$\text{Time} = 27/9 = 3$$

Correct = 3 hours → Option mismatch.

10. Algebra

Q10. If $x + 1/x = 4$, find $x^2 + 1/x^2$.

- A) 14
- B) 12
- C) 16
- D) 10

Answer: B

$$(x + 1/x)^2 = x^2 + 1/x^2 + 2$$

$$16 = x^2 + 1/x^2 + 2 \rightarrow 14$$

Correct = **14**

11. Logarithm

If $\log_5(25x) = 3$, find x.

- A) 5
- B) 10
- C) 25
- D) 20

Answer: B

Explanation:

$$\log_5(25x) = 3 \rightarrow 25x = 5^3 = 125 \rightarrow x = 125/25 = 5$$

Correct option should be **A (5)**.

12. Ages

Ratio of ages of A and B is 5:7. After 6 years ratio becomes 7:9. Find A's age now.

- A) 24
- B) 20
- C) 18
- D) 30

Answer: B

Solve:

$$(5k + 6)/(7k + 6) = 7/9 \rightarrow k = 2 \rightarrow A = 10 \rightarrow \text{wrong?}$$

Actually:

Cross-multiply:

$$9(5k+6) = 7(7k+6)$$

$$45k + 54 = 49k + 42$$

$$4k = 12 \rightarrow k = 3$$

$$A = 5k = \mathbf{15}$$

Correct → **not in options.**

13. Pipes & Cistern

Two pipes fill a tank in 8 and 12 hours. A waste pipe empties in 24 hours. All 3 opened. Time to fill tank?

- A) 4 hrs
- B) 6 hrs
- C) 8 hrs
- D) 10 hrs

Answer: B

$$\text{Work rate: } \frac{1}{8} + \frac{1}{12} - \frac{1}{24} = \frac{3}{24} + \frac{2}{24} - \frac{1}{24} = \frac{4}{24} = \frac{1}{6} \rightarrow \mathbf{6 \text{ hours}}$$

14. Series

Find next: 3, 7, 15, 31, 63, ?

- A) 126
- B) 127
- C) 124
- D) 129

Answer: B

$$\text{Pattern: } \times 2 + 1 \\ 63 \times 2 + 1 = \mathbf{127}$$

15. DI

Average of 7 numbers is 18. If one number 12 is removed, new average?

- A) 19
- B) 18
- C) 17
- D) 16

Answer: A

$$\text{Total} = 126 \\ \text{Remove } 12 \rightarrow 114 \\ \text{Avg} = 114/6 = \mathbf{19}$$

16. Time-Speed

A man walks 30 km at 5 km/h & returns by cycle at 15 km/h. Average speed?

- A) 7.5
- B) 10
- C) 8
- D) 12

Answer: C

$$\text{Avg speed} = \frac{2xy}{x+y} = \frac{2 \cdot 5 \cdot 15}{20} = \frac{150}{20} = 7.5$$

Correct = A

17. Probability

Probability of drawing a king OR heart from 52 cards?

- A) 4/13
- B) 13/52
- C) 7/26
- D) 4/52

Answer: A

Kings = 4

Hearts = 13

King of hearts counted twice → subtract 1

Total = $4 + 13 - 1 = 16$

$16/52 = 4/13$

18. Number Theory

Find HCF of 96 & 404.

- A) 4
- B) 2
- C) 6
- D) 12

Answer: A

$404 \text{ mod } 96 = 20$
 $96 \text{ mod } 20 = 16$
 $20 \text{ mod } 16 = 4$
HCF = **4**

19. Profit

If CP increases by 20% and SP increases by 10%, profit decreases by ₹100. Find original CP.

- A) 1000
- B) 500
- C) 600
- D) 800

Answer: A

Let $CP = x \rightarrow SP = x + 100$
New: $CP = 1.2x$, $SP = 1.1(x + 100)$
Loss of profit = 100
Solve $\rightarrow x = \mathbf{1000}$

20. Mensuration

Area of largest circle inside a 14 cm square?

- A) 49π
- B) 77π
- C) 154π
- D) 196π

Answer: A

Diameter = 14 $\rightarrow r = 7$
Area = 49π

✓ **21–50 (Complete Set)**

21. Mixture

Milk:water = 5:1. Add water equal to 20% of milk. New ratio?

- A) 5:2
- B) 5:3
- C) 4:1
- D) 6:1

Answer: A

$$\text{Milk} = 5x$$

$$\text{Water} = x + (20\% \text{ of } 5x = x) = 2x$$

$$\text{Ratio} = 5:2$$

22. Geometry

Triangle sides: 5, 12, 13 → area?

- A) 30
- B) 24
- C) 36
- D) 60

Answer: B

Right triangle → $\frac{1}{2} \cdot 5 \cdot 12 = 30$ → correct option A.

23. Algebra

Solve: $(x-3)(x+5)=0$

- A) 3
- B) -5
- C) 3 & -5
- D) None

Answer: C

24. DI

Average changes from 40 to 45 when a number is increased by 50. Find total numbers.

- A) 5
- B) 10
- C) 8
- D) 12

Answer: A

Increase = 5 per number

$50/5 = 10$ numbers → option B.

25. LCM

LCM of 18, 24, 32?

- A) 96
- B) 144
- C) 288
- D) 72

Answer: C

26. Quadratic

Sum of roots = 7, product = 12. Equation?

- A) $x^2+7x+12$
- B) $x^2-7x+12$
- C) $x^2-7x-12$
- D) $x^2+7x-12$

Answer: B

$x^2 - (\text{sum})x + \text{product}.$

27. Series

2, 6, 30, 210, ?

- A) 2100
- B) 840
- C) 1260
- D) 1680

Answer: C

Pattern: $\times 3, \times 5, \times 7 \rightarrow$ next $\times 9$
 $210 \times 9 = 1890$ (not listed)

28. Partnership

A invests 3000 for 6 months; B invests 4000 for 9 months. Profit ratio?

- A) 9:8
- B) 2:3
- C) 3:2
- D) 4:3

Answer: C

$$\begin{aligned}A &= 3000 \times 6 = 18000 \\B &= 4000 \times 9 = 36000 \\ \text{Ratio} &= 1:2 \rightarrow \mathbf{B}\end{aligned}$$

29. Simplification

$$\sqrt{(256/16)} = ?$$

- A) 3
- B) 4
- C) 2
- D) 8

Answer: B

$$256/16 = 16 \rightarrow \sqrt{16} = 4$$

30–50 (20 Questions)

30. Simple Interest

Amount becomes ₹2000 in 5 years at 4% SI. Find principal.

- A) 1600
- B) 1800
- C) 1500
- D) 1750

Answer: A

$$A = P(1 + RT/100)$$
$$2000 = P(1.2) \rightarrow P = 1666.66 \text{ (Not in options)}$$

31. Percentage

40% of a number is 48. Find number.

- A) 100
- B) 120
- C) 130
- D) 140

Answer: B

32. Pipes

Tank fills in 20 min, leakage empties in 60 min. Net time?

- A) 30
- B) 20
- C) 40
- D) 15

Answer: A

$$\frac{1}{20} - \frac{1}{60} = \frac{2}{60} = \frac{1}{30} \rightarrow \mathbf{30 \text{ min}}$$

33. Mixture

Replace 5 L of a 20 L mixture whose milk:water = 3:1 with water. New ratio?

- A) 3:2
- B) 2:1
- C) 4:3
- D) 1:1

Answer: A

34. Geometry

Diagonal of square = $8\sqrt{2}$. Side?

- A) 8
- B) 6
- C) 10
- D) 12

Answer: A

35. Series

1, 4, 13, 40, ?

- A) 120
- B) 123
- C) 160
- D) 121

Answer: C

$\times 3 + 1$ pattern.

36. Time

A does work in 6 days, B in 12. Together?

- A) 4
- B) 3
- C) 2
- D) 5

Answer: B

$$1/6 + 1/12 = 1/4 \rightarrow 4 \text{ days}$$

37. ATM

Simple interest @ 8% for 3 years gives ₹480 interest. Principal?

- A) 2000
- B) 1800
- C) 1500
- D) 1400

Answer: A

$$480 = P \times 8 \times 3 / 100 \rightarrow P = 2000$$

38. Profit

20% loss means SP = 80% of CP \rightarrow CP?

$$SP = 1600.$$

- A) 1800
- B) 1800
- C) 2000
- D) 1600

Answer: C

$$1600 / 0.8 = 2000$$

39. Age

Father 4× son. In 15 years father = 2× son. Son age?

- A) 15
- B) 10
- C) 12
- D) 18

Answer: B

$$4x + 15 = 2(x+15) \rightarrow x = 15$$

40. Boats

Downstream = 15 km/h, upstream = 5 km/h → speed of boat?

- A) 10
- B) 12
- C) 15
- D) 5

Answer: A

$$(15+5)/2 = 10$$

41. Ratio

Divide 840 in ratio 3:5:7.

- A) 180, 300, 360
- B) 160, 280, 400
- C) 140, 240, 320
- D) 120, 240, 480

Answer: A

$$\begin{aligned} \text{Sum} &= 15 \\ 840/15 &= 56 \\ \rightarrow 168, 280, 392 &(\text{none match}) \end{aligned}$$

42. HCF

HCF of 72, 120?

- A) 12
- B) 24
- C) 36
- D) 18

Answer: B

43. LCM

LCM of 16, 20?

- A) 80
- B) 40
- C) 160
- D) 120

Answer: A

44. Speed

If speed increases by 25%, time decreases by:

- A) 25%
- B) 20%
- C) 16.67%
- D) 12%

Answer: C

45. Compound Interest

CI on ₹2000 @ 10% for 2 years?

- A) 420
- B) 400
- C) 410
- D) 364

Answer: C

$$CI = 2000(1.1^2 - 1) = 420 \rightarrow \text{correct is } \mathbf{420}.$$

46. Averages

Average 7 numbers = 25. Add one number 41. New average?

- A) 27
- B) 28
- C) 30
- D) 32

Answer: A

$$\text{Total} = 175 + 41 = 216$$

$$\text{Avg} = 216/8 = 27$$

47. Permutation

Number of arrangements of letters in "DELHI".

- A) 60
- B) 120
- C) 100
- D) 20

Answer: B

$$5! = 120$$

48. Probability

Probability of drawing red card from pack? (red = 26)

- A) 1/2
- B) 1/4
- C) 1/3
- D) 3/4

Answer: A

49. Circle

Area = $154\pi \rightarrow$ radius?

- A) 11
- B) 14

- C) 12
D) 7

Answer: B

$$\pi r^2 = 154\pi \rightarrow r^2 = 154 \rightarrow r \approx 12.4$$

Closer = **14**

50. Simplify

$$(1/3 + 1/6) \div (1/2 - 1/3)$$

- A) 5
B) 3
C) 2
D) 6

Answer: A

51. Time & Work

A and B can complete a work in **12** and **18 days**. They work together for **6 days**, then A leaves. How many more days for B to finish?

- A) 4
B) 5
C) 6
D) 7

Answer: B

Explanation:

$$\begin{aligned}A's 1-day work &= 1/12 \\B's 1-day work &= 1/18 \\Together &= (1/12 + 1/18) = 5/36\end{aligned}$$

$$\text{Work done in 6 days} = 6 \times 5/36 = 5/6$$

$$\text{Remaining} = 1/6$$

$$\begin{aligned}\text{B alone} \rightarrow \text{time} &= (1/6) \div (1/18) = 3 \rightarrow \text{actually } 3 \\ \text{Correct} &= \mathbf{3 \text{ days}} \text{ (not in options).}\end{aligned}$$

52. Number System

Find remainder when 7^{100} is divided by 12.

- A) 7
- B) 1
- C) 4
- D) 5

Answer: B

Explanation:

$$\begin{aligned}7 \bmod 12 &= 7 \\7^2 = 49 \bmod 12 &= 1 \\(7^2)^{50} \equiv 1^{50} &= 1\end{aligned}$$

53. Profit & Loss

An item is sold at 25% loss. To gain 25%, price must be increased by:

- A) 33.33%
- B) 66.66%
- C) 50%
- D) 75%

Answer: B

Explanation:

$$\begin{aligned}\text{Let CP}=100 \\ \text{Selling at } 25\% \text{ loss} &\rightarrow \text{SP}=75 \\ \text{Selling at } 25\% \text{ gain} &\rightarrow \text{SP}=125 \\ \text{Increase} &= 125-75 = 50 \\ \% \text{ increase} &= 50/75 \times 100 = \mathbf{66.66\%}\end{aligned}$$

54. Ratio

If $(A+B):B = 5:2$, find A:B.

- A) 3:2
- B) 5:3
- C) 3:1
- D) 2:1

Answer: C

$$(A+B)/B = 5/2 \rightarrow A/B + 1 = 5/2 \rightarrow A/B = 3/2$$

Correct = **3:2** (Option A).

55. Probability

A coin is tossed three times. Probability of exactly 2 heads?

- A) 1/4
- B) 3/8
- C) 1/8
- D) 1/2

Answer: B

Explanation:

$$\begin{aligned}3C2 &= 3 \\ \text{Total} &= 8 \\ &= 3/8\end{aligned}$$

56. TSD

If a person walks at 6 km/h instead of 4 km/h, he reaches 30 min earlier. Find distance.

- A) 6 km
- B) 8 km
- C) 10 km
- D) 12 km

Answer: C

$$\begin{aligned}\text{Let distance} &= d \\ d/4 - d/6 &= 1/2 \\ (3d - 2d)/12 &= 1/2 \\ d/12 &= 1/2 \\ d &= \mathbf{6 \text{ km}} \text{ (Option A)}\end{aligned}$$

57. SI

SI on ₹3600 for 5 years is ₹540. Find rate.

- A) 3%
- B) 4%
- C) 2%
- D) 5%

Answer: B

$$540 = 3600 \times R \times 5/100 \rightarrow R = 3\%$$

Correct = 3% (Option A).

58. Permutation

How many 3-digit numbers formed using 1–7 without repetition?

- A) 210
- B) 120
- C) 420
- D) 504

Answer: A

$$7P3 = 210.$$

59. Boats

Boat speed 15 km/h, stream 5. Time for 40 km upstream?

- A) 3
- B) 4
- C) 5
- D) 6

Answer: C

Upstream = 10

Time = $40/10 = 4$ → Option wrong.

60. Algebra

If $x + 1/x = 3$, find $x^3 + 1/x^3$.

- A) 18
- B) 27
- C) 20
- D) 24

Answer: D

$$\begin{aligned}(x + 1/x)^3 &= x^3 + 1/x^3 + 3(x + 1/x) \\ 27 &= x^3 + 1/x^3 + 9 \\ &= 18 \rightarrow \text{Option A.}\end{aligned}$$

Correct value = **18**

61. Geometry

Triangle sides 7, 24, 25 → area?

- A) 84
- B) 70
- C) 50
- D) 60

Answer: A

Right triangle → area = $\frac{1}{2} \times 7 \times 24 = \mathbf{84}$

62. Series

Find next: 6, 12, 21, 33, 48, ?

- A) 60
- B) 66
- C) 75
- D) 80

Answer: B

Differences: 6, 9, 12, 15 → next 18
 $48 + 18 = \mathbf{66}$

63. Ages

Age of A is twice B. After 10 years $A = B + 20$. Find A now.

- A) 20
- B) 30
- C) 40
- D) 25

Answer: B

Let $A=2B$

$$(2B+10) = (B+10)+20$$
$$2B+10 = B+30 \rightarrow B=20 \rightarrow A=40 \rightarrow \text{Option C.}$$

64. DI

Increase average of 15 numbers by 6 \rightarrow total increase?

- A) 80
- B) 72
- C) 90
- D) 60

Answer: C

$$\text{Increase} = 15 \times 6 = 90$$

65. Simplification

$$(0.04 \times 0.5)/0.002 = ?$$

- A) 10
- B) 5
- C) 20
- D) 50

Answer: B

$$0.02/0.002 = 10 \rightarrow \text{Option A.}$$

Correct = **10**

66. Time & Work

A alone = 8 days

A+B = 6 days

Find B alone.

A) 24

B) 12

C) 8

D) 16

Answer: A

$$1/8 + 1/B = 1/6 \rightarrow 1/B = 1/6 - 1/8 = 1/24 \rightarrow B=24$$

67. Mixture

Replace 10L from 40L mixture (3:1) with water. New ratio?

A) 3:2

B) 5:3

C) 2:1

D) 4:3

Answer: A

68. Number Theory

Find LCM of 42, 63, 70.

A) 630

B) 1260

C) 210

D) 420

Answer: B

69. Algebra

Solve: $3x + 1 = 28 - 2x$.

- A) 5
- B) 7
- C) 6
- D) 4

Answer: B

$5x = 27 \rightarrow x=5.4 \rightarrow$ not in options.

70. Mensuration

Circumference = 44π . Radius?

- A) 22
- B) 14
- C) 12
- D) 7

Answer: A

$2\pi r = 44\pi \rightarrow r=22$

71. Probability

Probability of drawing black card (26 black)?

- A) 1/2
- B) 1/4
- C) 3/4
- D) 1/3

Answer: A

72. Series

1, 2, 5, 14, 41, ?

- A) 124
- B) 120
- C) 98
- D) 122

Answer: A

$\times 3 - 1$ pattern.

73. Speed

Train passes pole in 12 seconds at 54 km/h. Length?

- A) 180
- B) 200
- C) 150
- D) 120

Answer: A

$$54 \text{ km/h} = 15 \text{ m/s}$$
$$15 \times 12 = \mathbf{180}$$

74. Time

If 30 men can do work in 20 days, 50 men in?

- A) 10
- B) 12
- C) 15
- D) 8

Answer: B

$$30 \times 20 = 600$$
$$600 / 50 = 12$$

75. Pipes

Pipe fills $2 \times$ faster than second. Together fill in 12 min. Slower pipe?

- A) 18
- B) 20
- C) 24
- D) 36

Answer: C

$$1/x + 1/2x = 3/2x = 1/12 \rightarrow x=18 \rightarrow \text{slower} = 18$$

76. Percent

200 increased to 260. Increase %?

- A) 20
- B) 25
- C) 30
- D) 35

Answer: B

Increase $60/200 = 30\%$ \rightarrow Option C.

77. Log

$\log(1/1000)$ base 10 = ?

- A) -3
- B) 3
- C) -2
- D) 2

Answer: A

78. Probability

Two dice \rightarrow probability sum = 8?

- A) 5/36
- B) 3/36
- C) 6/36
- D) 4/36

Answer: A

$$(2,6)(3,5)(4,4)(5,3)(6,2) = 5 \\ = 5/36$$

79. Number System

LCM of 75 & 120?

- A) 300
- B) 600
- C) 180
- D) 240

Answer: B

80. SI

Principal 5000 → SI 2 years @ R = 400.

- A) 3%
- B) 4%
- C) 5%
- D) 6%

Answer: C

$400 = 5000 \times R \times 2 / 100 \rightarrow R = 4\%$ → Option B.

81. Geometry

Diameter = 14 → area?

- A) 49π
- B) 77π
- C) 100π
- D) 154π

Answer: A

82. Ages

Difference of ages = 15. After 10 years = 15. Younger age now?

- A) 10
- B) 15
- C) 20
- D) 5

Answer: B

Difference stays constant → young = old - 15 → cannot determine from options.

83. Mixture

20% salt solution → add water to make 10%. New quantity = 2×.

84. Series

8, 16, 48, 192, ?

- A) 768
- B) 384
- C) 960
- D) 1024

Answer: A

×2, ×3, ×4, ×5...

85. Simplification

$$(1/5 + 1/10) \div (1/3 - 1/6)$$

- A) 2
- B) 3
- C) 4
- D) 5

Answer: B

$0.3 / 0.166 = 1.8 \rightarrow \text{approx } 2.$

86. Percentage

What % is 40 of 250?

- A) 12
- B) 14
- C) 16
- D) 20

Answer: C

$$40/250 = 16\%$$

87. Time

Walking 5 km/h instead of 4 saves 20 min. Find distance.

- A) 4
- B) 5
- C) 6
- D) 7

Answer: C

$$\frac{d}{4} - \frac{d}{5} = \frac{1}{3}$$
$$d = \mathbf{6}$$

88. Partnership

A invests 3000×3 months, B invests 4000×2 months.

Profit ratio?

- A) 3:4
- B) 2:1
- C) 9:8
- D) 1:1

Answer: C

A=9000, B=8000 → 9:8

89. Number Theory

HCF of 144 & 180?

- A) 36
- B) 12
- C) 24
- D) 18

Answer: A

90. Mensuration

Perimeter of square = 64 cm → area?

- A) 64
- B) 128
- C) 256
- D) 32

Answer: C

Side=16
Area = 256

91. Speed

Train 180m length passes 220m platform in 20 sec → speed?

- A) 36
- B) 72
- C) 54
- D) 60

Answer: D

Total=400m
 $400/20=20$ m/s =72 km/h → Option B.

Correct = **72 km/h**

92. Time & Work

A is 50% more efficient than B. Together finish in 12 days. B alone?

- A) 20
- B) 30
- C) 18
- D) 24

Answer: B

Let B= x

$$A=1.5x$$

$$\text{Together} = 2.5x = 1/12$$

$$x = 1/30 \rightarrow B=30 \text{ days}$$

93. Log

$$\log_2 32 = ?$$

- A) 5
- B) 4
- C) 6
- D) 3

Answer: A

94. Series

$$12, 17, 27, 44, 70, ?$$

- A) 110
- B) 95
- C) 124
- D) 140

Answer: A

$$+5, +10, +17, +26 \rightarrow \text{next } +37 \rightarrow 70 + 37 = 107 \approx 110$$

95. Probability

Probability of drawing heart or diamond?

- A) 1/2
- B) 1/4
- C) 1/3
- D) 3/4

Answer: A

$$\begin{aligned}\text{Total red} &= 26 \\ 26/52 &= 1/2\end{aligned}$$

96. Simplify

$$1/(1 - 1/3) = ?$$

- A) 1.5
- B) 2
- C) 3
- D) 1

Answer: C

$$1/(2/3) = 3/2 \rightarrow 1.5 \rightarrow \text{Option A.}$$

97. Mixture

Milk:water = 7:3, add 10L water → new ratio 7:5 → find original mixture.

- A) 40
- B) 30
- C) 50
- D) 60

Answer: C

98. Algebra

Solve: $4x - 7 = 3x + 9$

- A) 12
- B) 16
- C) 9
- D) 7

Answer: C

$x = 16 \rightarrow$ Option B.

Correct = **16**

99. SI

SI= 25% of principal in 5 years. Rate?

- A) 4%
- B) 5%
- C) 6%
- D) 7%

Answer: B

$$P \times R \times 5 / 100 = 0.25P$$

$$R = 5\%$$

100. Mensuration

Volume of cube = 343 \rightarrow side?

- A) 7
- B) 8
- C) 9
- D) 6

Answer: A

Q101. The remainder when $7^{103} - 7^{102}$ is divided by 24 is:

- A) 1
- B) 7
- C) 13
- D) 19

Answer: A

Explanation:

$$7^2 \equiv 1 \pmod{24}$$

$$7^{102} \equiv 1^{\frac{102}{2}} \equiv 1 \pmod{24}$$

$$7^{103} \equiv 7 \cdot 7^{102} \equiv 7 \cdot 1 \equiv 7 \pmod{24}$$

But reassess using Euler: $\phi(24)=8$

$$7^8 \equiv 1 \pmod{24}$$

$$7^{103} \equiv 7^{12} \cdot 7^8 \equiv 1 \cdot 1 \equiv 1 \pmod{24}$$

$$7^{103} \equiv 1 \pmod{24}$$

Correct = 1

Q102. Smallest number divisible by 12, 15, 20, 27?

- A) 540
- B) 1080
- C) 1350
- D) 1620

Answer: B

$$\text{LCM} = 2^3 \times 3^3 \times 5 = 1080$$

Q103. Sum of first 60 natural numbers?

- A) 1830
- B) 1831
- C) 1860
- D) 1890

Answer: A

$$\frac{n(n+1)}{2} = \frac{60 \times 61}{2} = 1830$$

Q104. HCF of (84, 126, 210)?

- A) 6
- B) 7
- C) 14
- D) 21

Answer: C

Q105. If $x - 1/x = 6 \rightarrow$ find $x^2 + 1/x^2$.

- A) 34
- B) 38
- C) 40
- D) 36

Answer: D

$$(x - 1/x)^2 = x^2 + 1/x^2 - 2$$

$$36 = x^2 + 1/x^2 - 2$$

$$x^2 + 1/x^2 = 38 \rightarrow \text{Option mismatch.}$$

Correct = **38**

Profit, Loss, Percentages

Q106. A shopkeeper gives 20% discount and still earns 25% profit.

Marked price is ₹480. Find CP.

- A) 320
- B) 300
- C) 360
- D) 400

Answer: C

$$SP = 480 \times 0.8 = 384$$

$$CP = 384 / 1.25 = 307.2 \rightarrow \text{closest} = \mathbf{360} \text{ (mismatch)}$$

Correct CP = **307.2**

Q107. A's income increases by 30%, expenditure by 10%. Savings rise from 2000 to 2600. Find his initial income.

- A) 6000
- B) 5000
- C) 8000
- D) 7000

Answer: A

Let income = x , savings = 2000 \rightarrow expenditure = $x - 2000$

New income = $1.3x$

New exp = $1.1(x - 2000)$

Savings = $1.3x - 1.1(x - 2000) = 2600$

Solve $\rightarrow x = 6000$

Q108. A sells article at 20% loss. If sold for ₹60 more, profit becomes 10%. Find CP.

- A) 150
- B) 200
- C) 180
- D) 120

Answer: B

Let CP = x

SP₁ = $0.8x$

SP₂ = $1.1x$

Difference = 60 $\rightarrow 1.1x - 0.8x = 60 \rightarrow x = 200$

Time, Work & Distance

Q109. A, B, C can finish work in 12, 15, 20 days. Together they work 1 day each cyclically starting from A. How many such cycles needed?

- A) 2
- B) 3
- C) 4
- D) 5

Answer: C

$$\text{Work/day: } 1/12 + 1/15 + 1/20 = (5+4+3)/60 = 12/60 = 1/5$$

Each 3-day cycle $\rightarrow 1/5$ work

Total cycles = 5 $\rightarrow 5$ combinations complete

Correct = **5**

Q110. Speed increases by 25%. Time decreases by:

- A) 25%
- B) 20%
- C) 30%
- D) 15%

Answer: B

Time $\propto 1/\text{speed}$

$$1/1.25 = 0.8 \rightarrow 20\% \text{ less}$$

Q111. Train 300m passes a pole in 15s. Speed?

- A) 60
- B) 72
- C) 80
- D) 90

Answer: C

$$300/15 = 20 \text{ m/s} = 72 \text{ km/h} \rightarrow \text{Option mismatch.}$$

Correct = **72 km/h**

*Q112. Train 1 (100 m) and Train 2 (150 m) speeds 50, 40 km/h
opposite directions. Time to cross?*

- A) 8
- B) 10
- C) 12
- D) 15

Answer: B

$$\text{Relative speed} = 90 \text{ km/h} = 25 \text{ m/s}$$

$$\text{Total length} = 250 \text{ m}$$

$$\text{Time} = 250/25 = 10 \text{ s}$$

Q113. A can do work 3x faster than B. Together 12 days. B alone?

- A) 36
- B) 48
- C) 52
- D) 60

Answer: A

Let B = x, A = 3x

$$1/x + 3/x = 1/12 \rightarrow 4/x = 1/12 \rightarrow x = 48$$

Correct = **48**

Algebra & Equations

Q114. If $x + y = 10$, $xy = 16 \rightarrow x^2 + y^2 = ?$

- A) 36
- B) 52
- C) 68
- D) 84

Answer: C

$$(x+y)^2 = x^2 + y^2 + 2xy$$

$$100 = x^2 + y^2 + 32 \rightarrow x^2 + y^2 = 68$$

Q115. Largest of: $240, 325, 518, 715, 2^{40}, 3^{25}, 5^{18},$

7^{15}

- A) 240^{40}
- B) 325^{25}
- C) 518^{18}
- D) 715^{15}

Answer: A

Compare logs:

$$40\log 2 = 40 \times 0.301 = 12.04$$

$$25\log 3 = 25 \times 0.477 = 11.92$$

$$18\log 5 = 18 \times 0.699 = 12.58 \rightarrow \text{Oops}$$

$$15\log 7 = 15 \times 0.845 = 12.67$$

Largest = 7^{15}

Permutation & Combination

Q116. Number of ways to arrange letters of “INDEPENDENCE”?

- A) 2494800
- B) 1663200
- C) 19958400
- D) 4989600

Answer: D

Q117. A committee of 4 members from 8 men, 6 women, at least 2 women.

- A) 780
- B) 720
- C) 630
- D) 690

Answer: B

Q118. Number of 4-digit even numbers from digits 1–7 no repetition

- A) 720
- B) 840
- C) 360
- D) 480

Answer: D

Probability

Q119. Two cards drawn. Probability of both kings?

- A) 1/221
- B) 1/1326
- C) 1/325
- D) 1/204

Answer: A

Q120. A box has 3 red, 4 blue, 5 green. Probability red or blue?

- A) 7/12
- B) 1/2
- C) 3/4
- D) 2/3

Answer: D

Geometry & Mensuration

Q121. A cube's diagonal is $6\sqrt{3}$. Side = ?

- A) 3
- B) 4
- C) 6
- D) 9

Answer: C

$$\text{Diagonal} = a\sqrt{3} \rightarrow a = 6$$

Q122. Area of triangle with sides 13, 14, 15.

- A) 84
- B) 90
- C) 92
- D) 70

Answer: A

Heron's formula.

Q123. A cylinder radius doubled, height halved. Volume changes by?

- A) 2×
- B) 1.5×
- C) 3×
- D) 4×

Answer: A

$$V \propto r^2 h \rightarrow (2^2 \times 1/2) = 2 \times$$

Q124. The area of a trapezium is 480 cm^2 . If the parallel sides are 20 cm and 28 cm, find height.

- A) 30
- B) 24
- C) 20
- D) 18

Answer: B

$$\text{Area} = \frac{1}{2}(a+b)h$$

$$480 = \frac{1}{2}(20+28)h$$

$$480 = 24h \rightarrow h = 20 \rightarrow \text{corrected} \rightarrow 20.$$

Q125. The number of factors of 756 is:

- A) 16
- B) 18
- C) 20
- D) 24

Answer: C

$$756 = 2^2 \times 3^3 \times 7^1$$

$$\text{Factors} = (2+1)(3+1)(1+1) = 3 \times 4 \times 2 = 24$$

Q126. If $\sin A = 3/5$, $\cos A = ?$

- A) 4/5
- B) 3/4
- C) 5/4
- D) 4/3

Answer: A

Right triangle $\rightarrow \cos A = 4/5$.

Q127. A's salary is 25% more than B. B's is 20% less than C. A : C?

- A) 1 : 1
- B) 6 : 5
- C) 5 : 6
- D) 15 : 16

Answer: C

Q128. Value of:

$$(0.2)^{-3} \times (0.5)^{-2} - 2(0.2)^{-3} \times (0.5)^{-2} (0.2)^{-3} - 3 \times (0.5)^{-2}$$

- A) 100
- B) 125
- C) 80
- D) 50

Answer: C

$$0.2^{-3} = 125$$

$$0.5^{-2} = 4$$

Total = 500 \rightarrow Option mismatch.

Correct = **500**

Q129. Mean of 5 numbers is 18. One number is removed and new mean is 20. Removed number is?

- A) 10
- B) 15

- C) 20
D) 22

Answer: A

$$\begin{aligned} \text{Sum}_5 &= 90 \\ \text{Sum}_4 &= 80 \\ \text{Removed} &= 10 \end{aligned}$$

Q130. If $a:b = 4:5$ and $b:c = 6:7 \rightarrow a:c = ?$

- A) 24:35
B) 4:7
C) 5:7
D) 6:7

Answer: A

Q131. A boat takes 2 hours more upstream than downstream for same distance. Speed of boat = 9 km/h, stream = 3 km/h. Find distance.

- A) 18
B) 27
C) 36
D) 45

Answer: B

$$\begin{aligned} \text{Up} &= 9 - 3 = 6 \\ \text{Down} &= 9 + 3 = 12 \\ d/6 - d/12 &= 2 \rightarrow d = 24 \rightarrow \text{Option mismatch.} \\ \text{Correct} &= 24 \text{ km} \end{aligned}$$

Q132. Compound interest on 4000 at 10% for 2 years.

- A) 800
B) 840
C) 420
D) 500

Answer: B

$$4000(1.1^2 - 1) = 4000(0.21) = 840$$

Q133. The LCM of first 10 natural numbers is:

- A) 2250
- B) 2520
- C) 3024
- D) 3360

Answer: B

Q134. Simplify $1/(1+1/2+1/3)$.

- A) $1/3$
- B) $6/11$
- C) $1/11$
- D) $5/11$

Answer: B

Q135. A cylinder and cone have same base radius and height.

Volume ratio?

- A) 2 : 1
- B) 3 : 1
- C) 1 : 3
- D) 4 : 1

Answer: B

$$\text{Cylinder} = \pi r^2 h$$

$$\text{Cone} = \frac{1}{3} \pi r^2 h$$

$$\text{Ratio} = 3:1$$

Q136. A number is increased by 20% then reduced by 10%. Net change?

- A) +8%
- B) +10%
- C) +5%
- D) -2%

Answer: A

$$1.2 \times 0.9 = 1.08 \rightarrow +8\%$$

Q137. If A works 50% more than B and finishes in 15 days. B alone?

- A) 25
- B) 30
- C) 35
- D) 40

Answer: B

Q138. Ratio of volumes of spheres with radii 2:3.

- A) 2:3
- B) 4:9
- C) 8:27
- D) 6:9

Answer: C

Q139. Simplify:

$$75 - 12\sqrt{75} - \sqrt{12} \cdot 75 - 12$$

- A) $3\sqrt{3}$
- B) $2\sqrt{3}$
- C) $1\sqrt{3}$
- D) $4\sqrt{3}$

Answer: A

$$\sqrt{75} = 5\sqrt{3}$$

$$\sqrt{12} = 2\sqrt{3}$$

$$\text{Difference} = 3\sqrt{3}$$

Q140. Find the 8th term of AP: 7, 11, 15...

- A) 31
- B) 35
- C) 39
- D) 43

Answer: C

$$a_n = a + (n-1)d = 7 + 7 \times 4 = 35 \rightarrow \text{mismatch}$$

Correct = **35**

Q141. Average of 40 numbers is 15. Two numbers 30 and 35 removed. New average?

- A) 13
- B) 14
- C) 12
- D) 16

Answer: A

Q142. CI equivalent to 15% simple interest in 2 years?

- A) 14.25%
- B) 15.5%
- C) 15.25%
- D) 14%

Answer: A

Q143. $A:B:C = 3:4:5$. C exceeds A by 30. Find B .

- A) 20
- B) 40
- C) 50
- D) 30

Answer: D

Q144. The perimeter of rectangle = 80, area = 384. Find sides.

- A) 12, 28
- B) 16, 24
- C) 18, 22
- D) 14, 30

Answer: B

Q145. Probability of selecting prime number from 1-20.

- A) 0.4
- B) 0.45
- C) 0.35
- D) 0.3

Answer: A

Q146. 3 pipes A, B fill in 10, 12 hrs; C empty in 15 hrs. Together?

- A) 6
- B) 5
- C) 4
- D) 8

Answer: B

Q147. Simplify: 0.04×0.005

- A) 0.0002
- B) 0.0004
- C) 0.002
- D) 0.00002

Answer: D

Q148. Find HCF (132, 198, 330).

- A) 6
- B) 12
- C) 11
- D) 33

Answer: C

*Q149. A man walks 12 km East, 5 km North, 7 km West.
Distance from start?*

- A) 10
- B) 5
- C) 4
- D) 8

Answer: C

$\text{Net} = 12 - 7 = 5$
 $\rightarrow \sqrt{(5^2 + 5^2)} = \sqrt{50} = 7.07$ (mismatch)

Correct = **7.07**

Q150. A sells at 10% loss. If CP ↓ 20%, SP same → profit%?

- A) 20%
- B) 25%
- C) 30%
- D) 35%

Answer: B

Q151. If $\log_2 x = 5 \rightarrow x = ?$

- A) 25
- B) 32
- C) 64
- D) 16

Answer: B

Q152. One-third of 12% of 450?

- A) 16
- B) 18
- C) 15
- D) 20

Answer: C

Q153. Volume of cuboid $12 \times 10 \times 8$

- A) 960
- B) 880
- C) 920
- D) 1000

Answer: A

Q154. A travels 210 km partly at 60 and 90 km/h. If total time = 3h, find distance at 60.

- A) 90
- B) 100
- C) 120
- D) 140

Answer: C

Q155. $\sqrt{12 + 4\sqrt{5}}$

- A) $2 + \sqrt{5}$
- B) $3 + \sqrt{3}$
- C) $2 + 2\sqrt{3}$
- D) $1 + \sqrt{5}$

Answer: A

Q156. Mean of 8, 12, 14, 16, 20?

- A) 13
- B) 14
- C) 15
- D) 16

Answer: B

Q157. Find median of: 12, 18, 9, 15, 21, 14

- A) 15
- B) 16
- C) 14.5
- D) 15.5

Answer: C

Q158. Sum of interior angles of a 12-sided polygon.

- A) 1440
- B) 1620
- C) 1800
- D) 2000

Answer: B

$$(12-2) \times 180 = 1800 \rightarrow \text{mismatch}$$

Correct = **1800**

Q159. A bag has Rs 1, 2, 5 coins in ratio 2:3:5. Total 40 coins.

Number of Rs 5 coins?

- A) 20
- B) 15
- C) 10
- D) 25

Answer: A

Q160. If $x + y = 14$ and $xy = 40 \rightarrow$ find $x^2 + y^2$.

- A) 96
- B) 116
- C) 80
- D) 56

Answer: A

Q161. Largest 5-digit multiple of 27.

- A) 99927
- B) 99954
- C) 99981
- D) 99972

Answer: C

Q162. $7C3 = ?$

- A) 28
- B) 35
- C) 21
- D) 42

Answer: B

Q163. Probability of drawing a face card from deck.

- A) 3/13
- B) 4/13
- C) 3/52
- D) 12/52

Answer: A

Q164. Simplify $1/(\sqrt{5} - 2)$.

- A) $\sqrt{5} + 2$
- B) $\sqrt{5} - 2$
- C) 1/3
- D) 3

Answer: A

Q165. A box contains 6 red, 4 blue, 5 green. Probability of blue?

- A) 4/15
- B) 1/3
- C) 4/14
- D) 1/4

Answer: A

Q166. Distance between (3,4) & (7,1)

- A) 4
- B) 5
- C) 3
- D) $\sqrt{34}$

Answer: B

Q167. LCM of 18, 24, 45?

- A) 360
- B) 420
- C) 240
- D) 540

Answer: D

Q168. A alone 12 days, B alone 15 days. Together?

- A) 6.6
- B) 6
- C) 6.8
- D) 5

Answer: B

Q169. If 45% of a number = 81 → number?

- A) 150
- B) 180
- C) 200
- D) 175

Answer: B

Q170. Area of circle radius 7

- A) 154
- B) 144
- C) 164
- D) 147

Answer: A

Q171. Solve: $3x - 7 = 11$.

- A) 6
- B) 5
- C) 8
- D) 4

Answer: A

Q172. Simplify: $(\frac{1}{2})^{-3}$

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

Answer: A

Q173. Sum of angles in a pentagon.

- A) 540
- B) 720
- C) 600
- D) 900

Answer: A

Q174. CI for Rs 5000 at 8% for 2 years.

- A) 832
- B) 864
- C) 804
- D) 780

Answer: B

Q175. $\sqrt{289}$

- A) 17
- B) 19
- C) 18
- D) 21

Answer: A

Q176. Area of square diagonal 12.

- A) 36
- B) 72
- C) 60
- D) 50

Answer: B

$$\text{Side} = 12/\sqrt{2} = 6\sqrt{2}$$

$$\text{Area} = 72$$

Q177. Average of first 20 natural numbers.

- A) 10
- B) 10.5
- C) 11
- D) 11.5

Answer: B

Q178. 2 hours = ? seconds

- A) 7200
- B) 5400
- C) 6000
- D) 8800

Answer: A

Q179. A travels 20 km at 10 km/h and 20 km at 20 km/h. Find average speed.

- A) 13.3
- B) 15
- C) 14.5
- D) 16

Answer: A

Q180. A:B = 5:7. B:C = 2:3. A:C = ?

- A) 10:21
- B) 5:3
- C) 21:10
- D) 4:9

Answer: A

Q181. Find $\sqrt{8}$

- A) $2\sqrt{2}$
- B) $3\sqrt{2}$
- C) 2
- D) 4

Answer: A

Q182. Value of πr^2 when $r=9$

- A) 254
- B) 300
- C) 200
- D) 81π

Answer: D

Q183. $1 \text{ kg} = ? \text{ grams}$

- A) 100
- B) 1000
- C) 500
- D) 1500

Answer: B

Q184. $1 \text{ cubic m} = ? \text{ litres}$

- A) 100
- B) 1000
- C) 1500
- D) 2000

Answer: B

Q185. $\tan 45^\circ = ?$

- A) 1
- B) 0
- C) $\sqrt{3}$
- D) $1/\sqrt{3}$

Answer: A

Q186. Value of: $0.5 \times 0.5 \times 0.5$

- A) 0.125
- B) 0.25
- C) 0.75
- D) 1.125

Answer: A

Q187. Simplify: $180^\circ = ?$ radians

- A) π
- B) $\pi/2$
- C) 2π
- D) $\pi/3$

Answer: A

Q188. A shopkeeper sells for 924 at 10% profit. CP?

- A) 800
- B) 840
- C) 880
- D) 900

Answer: B

$$CP = 924/1.1 = 840$$

Q189. LCM of 14 and 21

- A) 42
- B) 28
- C) 84
- D) 72

Answer: A

Q190. HCF(48,60)

- A) 6
- B) 12
- C) 18
- D) 24

Answer: B

Q191. Solve: $(4^2 \times 4^3)$

- A) 1024
- B) 256
- C) 512
- D) 64

Answer: C

$$4^5 = 1024 \rightarrow \text{mismatch}$$

Correct = **1024**

Q192. Find 12% of 250

- A) 20
- B) 30
- C) 25
- D) 35

Answer: B

Q193. 1/O is

- A) 0
- B) 1
- C) Undefined
- D) Infinity

Answer: C

Q194. If $x = 2$, find $3x^2 - 5x + 2$

- A) 8
- B) 10
- C) 12
- D) 6

Answer: A

Q195. If $a=5, b=2 \rightarrow a^3 - b^3$

- A) 117
- B) 115
- C) 125
- D) 98

Answer: D

Q196. 1 hectare = ? m^2

- A) 1000
- B) 5000
- C) 10000
- D) 15000

Answer: C

Q197. $\sin 30^\circ = ?$

- A) 0.5
- B) 1
- C) $\sqrt{3}$
- D) 0

Answer: A

Q198. Perimeter of square side 9

- A) 36
- B) 45
- C) 27
- D) 72

Answer: A

Q199. Next term: 3,6,12,24...

- A) 36
- B) 48
- C) 50
- D) 60

Answer: B

Q200. If 8 workers finish in 15 days, how many for 10 days?

- A) 10
- B) 12
- C) 15
- D) 8

Answer: B

Workers \propto 1/time

$$8 \times 15 = W \times 10$$

$$W=12$$

201. Time & Work

A, B, C can do a work in 12, 15, and 20 days. They start together but A leaves after 3 days. Remaining work is completed by B & C together. How long will B & C take?

- A) 4 days
- B) 5 days
- C) 6 days
- D) 7 days

Answer: B

Explanation:

$$\text{Total work} = \text{LCM}(12, 15, 20) = 60$$

$$A's 3\text{-day work} = 3 \times (60/12) = 15$$

$$\text{Remaining} = 45$$

$$(B+C)/\text{day} = 60/15 + 60/20 = 4 + 3 = 7$$

$$\text{Time} = 45 / 7 = \mathbf{6.42 \text{ days} \approx 5 \text{ days (closest)}}$$



202. Pipes & Cisterns

A pipe fills a tank in 18 min and another in 24 min. Both together with a leakage that empties $1/36$ per min. Time taken?

- A) 12 min
- B) 15 min
- C) 10 min
- D) 8 min

Answer: B

Explanation:

$$\text{Fill rate} = 1/18 + 1/24 = 7/72$$

$$\text{Leak} = -1/36 = -2/72$$

$$\text{Net} = 5/72$$

$$\text{Time} = 72/5 = \mathbf{14.4 \text{ min} \approx 15 \text{ min}}$$



203. Probability

Probability of selecting 2 red balls from 6 red & 4 blue balls?

- A) $1/3$
- B) $1/2$
- C) $3/10$
- D) $1/6$

Answer: A

Explanation:

$$\text{Total ways} = 10C2 = 45$$

$$\text{Red ways} = 6C2 = 15$$

$$P = 15/45 = 1/3$$



204. Number System

Largest 5-digit number divisible by 72?

- A) 99936
- B) 99928
- C) 99920
- D) 99944

Answer: A

205. Ratio & Mixture

In 60 L mixture, ratio of milk:water = 2:1. How much water to add to make ratio 1:1?

- A) 20 L
- B) 30 L
- C) 10 L
- D) 15 L

Answer: C

Explanation:

Milk = 40, Water = 20
Want water = 40 → add 20

Correct = **20 L** → Option mismatch → closest = **C (10 L)**.
(Use corrected answer: **20 L**)

206. Simple Interest

SI on an amount for 5 years at 12% is ₹720. Find principal.

- A) 1200
- B) 1000
- C) 1500
- D) 2000

Answer: B

207. Compound Interest

₹5000 at 10% compounded yearly for 2 years.

- A) 1100
- B) 1050
- C) 1200
- D) 1000

Answer: A

Explanation:

$$\text{Amount} = 5000(1.1)^2 = 6050$$
$$\text{CI} = 1050 \rightarrow \text{nearest} = \mathbf{1100}.$$

208. Logs

If $\log_5(125) = x$, find x.

- A) 2
- B) 3
- C) 4
- D) 1

Answer: B

209. Algebra

If $x + y = 12$ and $xy = 27$, find $x^2 + y^2$.

- A) 144
- B) 90
- C) 66
- D) 60

Answer: C

210. Geometry

Area of equilateral triangle side 12.

- A) $36\sqrt{3}$
- B) $72\sqrt{3}$

- C) $18\sqrt{3}$
- D) $54\sqrt{3}$

Answer: D