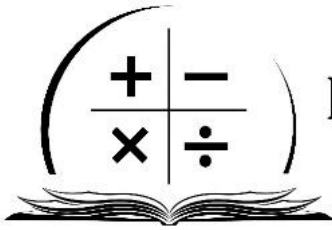


STATE LEVEL EXAM (2025 – 2026)



MATHS MARATHON
Competition For Excellence

CLASS

9

Total Questions : 100

Total Marks : 100

Time : 80 Minutes

INSTRUCTIONS TO THE STUDENT'S

1. Please do not open this question paper unless you are instructed.
- 2. Don't write anything on question paper, you can carry blank page for rough calculations**
3. Additional 5 minutes will be given to the candidates for filling up the student's details before the start of the competition.
4. The paper consists of 5 different chapters of the textbook.
5. All questions are compulsory and consist of equal marks.
6. Each question is carrying 1 mark; there is no negative marking.
7. There is only one correct answer, hence mark one answer only.
- 8. Darken the circle on OMR sheet with blue/black ball pen only.**
- 9. Return the answer sheet along with the question paper to the supervisor at the end of the exam.**

Name - _____

SCHOOL - _____

ROLL NO - _____ CLASS - _____

SECTION 1 - RATIO AND PROPORTION

1. Two numbers are in the ratio 3 : 5. If their sum is 64, what are the two numbers?
 A) 24 and 40 B) 18 and 46 C) 20 and 44
2. A sum of ₹9,000 is divided among A, B, and C in the ratio 2 : 3 : 4. How much does B receive?
 A) ₹2,000 B) ₹3,000 C) ₹4,000
3. The ratio of boys to girls in a class is 3 : 5. If there are 40 students, how many are girls?
 A) 20 B) 30 C) 25
4. The ratio of milk to water in a mixture is 4 : 1. If the mixture contains 20 litres, find total milk?
 A) 12 L B) 18 L C) 16 L
5. The ratio of red balls to blue balls is 7 : 3. If there are 21 red balls, how many blue balls are there?
 A) 6 B) 9 C) 12
6. Two numbers are in ratio 5 : 7. If 9 is added to each, the ratio becomes 3 : 4. Find smaller number.
 A) 45 B) 63 C) 35
7. Two numbers are in the ratio 9 : 13. If 12 is added to smaller number, the two numbers become equal. Find the smaller number.
 A) 39 B) 48 C) 27
8. The ages of P and Q are in the ratio 4 : 7. After 6 years, ratio becomes 10 : 17. Find P's present age.
 A) 76 B) 84 C) 80
9. Ratio of present ages of A, B, & C is 3 : 4 : 5. If the sum of their ages is 96 yrs, find age of B?
 A) 24 years B) 36 years C) 32 years
10. If 12 workers can finish a work in 10 days, how many days will 6 workers take?
 A) 15 days B) 20 days C) 25 days
11. Present age of A & B in ratio 7 : 3. After 6 yrs, ratio of ages will 5 : 3. Find their current ages?
 A) 28 years and 12 years B) 35 years and 15 years C) 14 years and 6 years
12. If $a = -3$ and $b = 2$, compare $\frac{a}{b-1}$ and $\frac{a}{b+1}$.
 A) $\frac{a}{b-1} < \frac{a}{b+1}$ B) $\frac{a}{b-1} > \frac{a}{b+1}$ C) $\frac{a}{b-1} = \frac{a}{b+1}$
13. If $\frac{m}{n} = \frac{4}{11}$, then by applying Invertendo, find $\frac{n-m}{n+m}$.
 A) $\frac{7}{15}$ B) $\frac{7}{3}$ C) $\frac{11+4}{11-5}$
14. If $\frac{m}{n} = \frac{4}{7}$, apply Dividendo to calculate $\frac{m-n}{n}$.
 A) $\frac{3}{7}$ B) $-\frac{3}{7}$ C) $\frac{7}{3}$
15. Seller sells apple, orange, & mango in ratio 4:6:8. He sells 72 mangos, find oranges he sell?
 A) 36 B) 54 C) 48
16. Three painters, A, B, & C, paint wall in ratio 2:3:5. If A & B total paint 100 sq. Find C paint?
 A) 50 sq. meters B) 125 sq. meters C) 100 sq. meters

17. Three friends, A, B, & C, share a sum of ₹90,000 in the ratio 5:3:2. How much does C receive?
A) ₹18,000 B) ₹17,000 C) ₹15,000
18. If $2a^2b$, $4ab^2$, p are in continued proportion, find the value of p .
A) $12b^3$ B) $16b^3$ C) $8b^3$
19. Five numbers are in continued proportion. The first term is 2, the last term is 162 Find numbers.
A) 2, 6, 18, 54, 162 B) 2, 4, 8, 16, 162 C) 2, 8, 32, 64, 162
20. Three numbers are in continued proportion. First term is 5, third term is 125. Find second term.
A) 75 B) 50 C) 25

SECTION 2 - LINEAR EQUATIONS IN TWO VARIABLES

21. Solve: $3x + 2y = 8$ and $x + y = 3$. What is y ?
A) 1 B) 2 C) 3
22. Solve $2x + 3y = 12$ and $4x - y = 10$. What is y ?
A) 0 B) 1 C) 2
23. Solve: $3x + 2y = 12, x + 2y = 8$
A) (2, 3) B) (4, 2) C) (6, 1)
24. Find the solution of the pair: $x + y = 10, x - y = 2$
A) (6, 4) B) (6, 5) C) (5, 5)
25. Solve: $2x + y = 7, x + y = 5$
A) (1, 4) B) (2, 3) C) (3, 4)
26. Find the value of x and y : $3x - y = 5, 2x + y = 10$
A) (2, 1) B) (3, 2) C) (3, 4)
27. Solve: $4x + y = 11, 2x + y = 7$
A) (1, 3) B) (5, 2) C) (2, 3)
28. The sum of two numbers is 20 and their difference is 4. Find the larger number.
A) 10 B) 12 C) 14
29. Sum of ages of father and son is 50 years. Father is 20 years older than son. Find the son's age.
A) 15 years B) 20 years C) 25 years
30. Two numbers add up to 27. One number is 3 more than twice the other. Find smaller number.
A) 7 B) 8 C) 9
31. The number of ₹5 coins & ₹10 coins together is 20. Total value is ₹140. Find count of ₹10 coins?
A) 8 B) 6 C) 10
32. The perimeter of a rectangle is 60 cm. Its length is 5 cm more than its breadth. Find the breadth.
A) 10 cm B) 12.5 cm C) 15 cm
33. The sum of two numbers is 35. Three times the first number is equal to twice the second number. Find the first number.
A) 10 B) 14 C) 21

51. Circle radius of 13 cm, chord is 24 cm. Find the perpendicular distance of the chord from center?
 A) 5 cm B) 10 cm C) Not possible
52. What is the circumference of a circle with a radius of 12 cm?
 A) 24π cm B) 36π cm C) 48π cm
53. A car tire has a radius of 0.35 m. What is the circumference of the tire?
 A) 2.19 m B) 1.1 m C) 2.2 m
54. A rectangular field is 40 m long and 25 m wide. Find the cost of fencing it at ₹5 per meter.
 A) ₹600 B) ₹650 C) ₹700
55. The diagonals of a rhombus-shaped garden are 16 m and 12 m. Find its area.
 A) 96 m^2 B) 192 m^2 C) 144 m^2
56. A circular park has radius 14 m. Find the length of its boundary.
 A) 44 m B) 88 m C) 176 m
57. The area of a rectangular hall is 240 m^2 . If its breadth is 12 m, find its length.
 A) 18 m B) 20 m C) 22 m
58. A circular well has diameter 14 m. Find the length of the path around it.
 A) 22 m B) 44 m C) 88 m
59. Three angles of a quadrilateral are 90° , 85° , and 95° . Find the fourth angle.
 A) 70° B) 80° C) 90°
60. A farmer has a rectangular field 50 m long and 25 m wide. He wants to put a fence around it. What is the total length of fencing needed?
 A) 150 m B) 120 m C) 100 m

SECTION 4 - TRIGONOMETRY

61. What is the formula for $\tan(90^\circ - \theta)$?
 A) $\sin\theta$ B) $\cot\theta$ C) $\sec\theta$
62. Evaluate $\sin 60^\circ + \cos 30^\circ$.
 A) 1 B) $\sqrt{2}$ C) $\sqrt{3}$
63. What is the value of $3\cos 45^\circ + 2\sin 30^\circ$?
 A) $\frac{3\sqrt{2}}{2}$ B) $\frac{3\sqrt{2}}{2} + 1$ C) 2.5
64. Evaluate $\cos 30^\circ - \sin 60^\circ + \tan^2 45^\circ$.
 A) 1 B) 0.5 C) 2
65. Find the value of $\frac{\sin 65^\circ}{\cos 25^\circ}$
 A) 2 B) 0.5 C) 1
66. In a right-angled triangle, ABC, $\angle C = 90^\circ$, AC = 3, and BC = 4, find $\cos A$.
 A) $\frac{4}{5}$ B) $\frac{3}{5}$ C) 1
67. In a right-angled triangle, sides are 5, 12, & 13. What is $\sin A$ if $\angle A$ is opposite side of length 12?
 A) $\frac{5}{13}$ B) $\frac{12}{13}$ C) $\frac{12}{5}$

68. If $\sin\theta = \frac{7}{25}$, find $\cos\theta$.
 A) $\frac{25}{24}$ B) $\frac{7}{24}$ C) $\frac{24}{25}$
69. If $\tan\theta = \frac{8}{15}$, find $\sec\theta$.
 A) $\frac{17}{15}$ B) $\frac{15}{17}$ C) $\frac{15}{8}$
70. If $\sin\theta = \frac{3}{5}$, find $\cos\theta$.
 A) $\frac{3}{4}$ B) $\frac{5}{4}$ C) $\frac{4}{5}$
71. In right-angled triangle ABC, $\angle B = 90^\circ$, BC = 12 cm, AB = 13 cm. Find $\sin A$.
 A) $\frac{5}{13}$ B) $\frac{12}{13}$ C) $\frac{13}{12}$
72. In right-angled triangle ABC, $\angle A = 90^\circ$, AB = 7 cm, AC = 24 cm. Find $\cos C$.
 A) $\frac{24}{25}$ B) $\frac{7}{25}$ C) $\frac{7}{24}$
73. If $\cos A = \frac{8}{17}$, then the value of $\tan A$ is:
 A) $\frac{15}{8}$ B) $\frac{8}{15}$ C) $\frac{17}{8}$
74. In right-angled triangle, sides are 12, 35, & 37. Find $\sin C$ if $\angle C$ is opp. the side of length 12?
 A) $\frac{12}{35}$ B) $\frac{35}{37}$ C) $\frac{12}{37}$
75. In right-angled triangle, the sides are 9, 40, & 41. What is $\tan A$ if $\angle A$ is opposite side of length 9?
 A) $\frac{9}{40}$ B) $\frac{40}{9}$ C) $\frac{9}{41}$
76. Evaluate $\cos 30^\circ - \sin 60^\circ + \tan^2 45^\circ$.
 A) 1 B) 0.5 C) 2
77. The value of $\tan 45^\circ$ is:
 A) 0 B) 1 C) $\sqrt{3}$
78. If $\tan \theta = \frac{5}{12}$, find $\sin \theta$.
 A) $\frac{5}{13}$ B) $\frac{12}{13}$ C) $\frac{13}{5}$
79. In right-angled triangle, sides are 7, 24, & 25. Find $\sin B$ if $\angle B$ is opposite side of length 7?
 A) $\frac{7}{25}$ B) $\frac{24}{25}$ C) $\frac{7}{24}$
80. The value of $\sin 30^\circ + \cos 60^\circ$ is:
 A) 1 B) $\frac{1}{2}$ C) 0

SECTION 5 – SURFACE AREA AND VOLUME

81. A cone with a radius of 6 cm and a height of 8 cm has a volume of:
 A) $144 \pi \text{ cm}^3$ B) $96 \pi \text{ cm}^3$ C) $192 \pi \text{ cm}^3$
82. The slant height of a cone with a height of 9 cm and a radius of 12 cm is:
 A) 15 cm B) 21 cm C) 18 cm

83. A sphere with a radius of r has a volume of V . What will be the volume if the radius is doubled?
 A) $2V$ B) $4V$ C) $8V$
84. What is the total surface area (TSA) of a cone?
 A) $\pi r (r + l)$ B) $2 \pi r l$ C) $\pi r^2 + 2 \pi r l$
85. If the radius & slant height of a cone are both halved, how does the curved surface area change?
 A) It remains the same. B) It becomes one-half. C) It becomes one-fourth.
86. A brick measures $20 \text{ cm} \times 10 \text{ cm} \times 5 \text{ cm}$. Find its total surface area.
 A) 700 cm^2 B) 800 cm^2 C) $1,000 \text{ cm}^2$
87. The surface area of a sphere is $144 \pi \text{ cm}^2$. What is its radius?
 A) 8 cm B) 12 cm C) 6 cm
88. An ice cube of side 8 cm melts completely. Find the volume of water obtained.
 A) 256 cm^3 B) 512 cm^3 C) $1,024 \text{ cm}^3$
89. An ice cream cone has a radius of 3 cm & a slant height of 10 cm . What is its curved surface area?
 A) $15\pi \text{ cm}^2$ B) $45\pi \text{ cm}^2$ C) $30\pi \text{ cm}^2$
90. The volume of a cubical box is 512 cm^3 . Find the edge.
 A) 6 cm B) 8 cm C) 10 cm
91. A room is 8 m long, 6 m wide, and 4 m high. Find the area of four walls.
 A) 224 m^2 B) 256 m^2 C) 112 m^2
92. A conical tower has a base diameter of 20 m & a slant height of 50 m . Find curved surface area .
 A) $400\pi \text{ m}^2$ B) $500\pi \text{ m}^2$ C) $600\pi \text{ m}^2$
93. A snow globe is spherical with a radius of 5 cm . What is its volume?
 A) $\frac{500\pi}{3} \text{ cm}^3$ B) $\frac{250\pi}{3} \text{ cm}^3$ C) $\frac{125\pi}{3} \text{ cm}^3$
94. A drum has diameter 70 cm and height 50 cm . Find its capacity.
 A) 192.5 L B) 154 L C) 176 L
95. A solid cone has a radius of 5 cm and a height of 12 cm . What is the volume of the cone?
 A) $60 \pi \text{ cm}^3$ B) $17 \pi \text{ cm}^3$ C) $100 \pi \text{ cm}^3$
96. A dice has edge 4 cm . Find its total surface area.
 A) 64 cm^2 B) 96 cm^2 C) 128 cm^2
97. A room is 6 m long and 5 m wide. Find the area of the floor.
 A) 25 m^2 B) 36 m^2 C) 30 m^2
98. A pipe has inner radius 7 cm and length 50 cm . Find the water it can hold.
 A) $5,390 \text{ cm}^3$ B) $8,800 \text{ cm}^3$ C) $7,700 \text{ cm}^3$
99. A carton measures $15 \text{ cm} \times 10 \text{ cm} \times 8 \text{ cm}$. Find its volume.
 A) $1,000 \text{ cm}^3$ B) $1,200 \text{ cm}^3$ C) $1,500 \text{ cm}^3$
100. A cubical gift box has total surface area 486 cm^2 . Find the edge of the box.
 A) 8 cm B) 9 cm C) 10 cm

ANSWER

QUE		QUE		QUE		QUE		QUE	
1	A	21	A	41	A	61	B	81	B
2	B	22	C	42	A	62	C	82	A
3	C	23	A	43	B	63	B	83	C
4	C	24	A	44	A	64	A	84	A
5	B	25	B	45	B	65	C	85	C
6	A	26	C	46	C	66	B	86	A
7	C	27	C	47	B	67	B	87	C
8	B	28	B	48	A	68	C	88	B
9	C	29	A	49	A	69	A	89	C
10	B	30	B	50	C	70	C	90	B
11	C	31	A	51	A	71	B	91	C
12	A	32	B	52	A	72	A	92	B
13	A	33	B	53	C	73	A	93	A
14	B	34	C	54	B	74	C	94	A
15	B	35	A	55	A	75	A	95	C
16	C	36	A	56	B	76	A	96	B
17	A	37	C	57	B	77	B	97	C
18	C	38	C	58	B	78	A	98	C
19	A	39	B	59	C	79	A	99	B
20	C	40	C	60	A	80	A	100	B