SCHOOL 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 with dark pencil or 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 - SETS / REAL NUMBERS

1. If set A = {x, y, z} and set B = {z, y, x}, are sets A and B equal?
A) Yes B) No C) Can't be determined

2. Which of the following sets is equal to {1, 2, 3, 4}?
A) {1, 2, 3} B) {2, 4, 6} C) {4, 3, 2, 1}

3. If set D = {x, y, z}, how many proper subsets does set D have ? (including the original set)
A) 8 B) 4 C) 3

4. If set I = {p, q, r}, what is the total number of subsets including the null set?
A) 3 B) 6 C) 8

5. If the universal set is the set of whole numbers less than 10, what is the complement of the set {2, 4, 6, 8}?
A) {0,1, 3, 5, 7, 9} B) {1, 2, 3, 4, 5, 6, 7, 8, 9} C) {3, 5, 7, 9}

6. Which symbol is used to represent the complement of a set?
A) ∩ B) ∪ C) '

7. If the universal set is the set of integers from 1 to 10, and set A = {2, 4, 6, 8}, what is the complement of set A?
A) {1, 3, 5, 7, 9, 10} B) {1, 2, 3, 4, 5, 6, 7, 8, 9, 10} C) {3, 5, 7, 9}

8. If set E = {apple, banana, cherry} and the universal set is the set of fruits, what is the complement of set E?
A) {apple, banana, cherry} B) {} C) Set of all fruits except apple, banana, and cherry

9. In a class of 40 students, 25 students like mathematics, and 20 students like science. If 15 students like both mathematics and science, how many students like only one subject?
A) 5 B) 10 C) 15

10. Which property states that the order of rational numbers does not change when they are added or multiplied?
A) Associative property B) Commutative property C) Identity property

11. Which property states that for any rational number a, a X 1 = a?
A) Associative property B) Identity property C) Distributive property

12. Which of the following is an example of an irrational number between 2 and 3?
A) 2.5 B) $\sqrt{5}$ C) 2.99

13. Which of the following is the approximate decimal representation of $\sqrt{13}$ rounded to two decimal places?
A) 3.62 B) 3.63 C) 3.61

14. What is the value of $\sqrt{196}$?

A) 14 B) 15 C) 16

15. Determine which is larger: $\sqrt{45}$ or $\sqrt{49}$.

A) $\sqrt{49}$ B) $\sqrt{45}$ C) Both are equal

16. Rationalize the denominator of $\frac{2}{\sqrt{5}}$.

A) $\frac{2}{\sqrt{5}}$ B) $\frac{2\sqrt{5}}{5}$ C) $\sqrt{5}$

17. Simplify $\sqrt{50}$.

A) $5\sqrt{2}$ B) $10\sqrt{5}$ C) $25\sqrt{2}$

18. If $\sqrt{a}$ = 5, then a is:

A) 10 B) 25 C) 5

19. Simplify $\sqrt{20}$ X $\sqrt{5}$.

A) $\sqrt{121}$ B) 10 C) $\sqrt{25}$

20. Simplify $\sqrt{18}$ + $\sqrt{18}$.

A) $4\sqrt{2}$ B) $5\sqrt{2}$ C) $6\sqrt{2}$

SECTION 2 - POLYNOMIALS

21. Which one represents the coefficients of the polynomial $4x^5 - 2x^3 + x$?

A) 4, -2, 1 B) 4, 0, -2, 0, 1 C) 4, -2, 0, 1

22. What is the coefficient form of the polynomial $4x^4 + 3x^2 + 6$?

A) 4, 3, 6 B) 4, 0, 3, 0, 6 C) 4, 0, 3

23. Identify the polynomial corresponding to the coefficient form 2, 0, -3, 0, 5.

A) $2x^4 - 3x^2 + 5$ B) $2x^4 - 3x^2 + 5x$ C) $2x^4 - 3x + 5$

24. Identify the polynomial for the coefficient form 5, 0, -2, 3, -1.

A) $5x^4 - 2x^3 + 3x - 1$ B) $5x^4 - 2x^2 + 3x - 1$ C) $5x^4 - 2x^3 + 3x^2 - 1$

25. Identify the polynomial for the coefficient form 2, -1, 0, 3, -2.

A) $2x^4 - x^3 + 3x^2 - 2$ B) $2x^4 - x^3 + 3x - 2$ C) $2x^4 - x^3 + 3x^2 - 2x$

26. What type of polynomial is $3x^3 - x^2 + 2x - 2$?

A) Linear polynomial B) Quadratic polynomial C) Cubic polynomial

27. Choose the polynomial in standard form from the options below:

A) $3x^2 - x + 4$ B) $-x + 4 + 3x^2$ C) $4 - x + 3x^2$

28. What is the standard form of the polynomial $2x^3 - x + 4x^2 - 3$?

A) $2x^3 - x + 4x^2 - 3$ B) $2x^3 + 4x^2 - x - 3$ C) $2x^3 - x - 3 + 4x^2$

29. What is the result of adding $2x^3 + 3x^2 - 4x$ and $5x^2 - 2x + 7$?

A) $7x^5 + 8x^4 - 6x^3 + 3x^2 - 6x + 7$ B) $2x^3 + 8x^2 - 6x + 7$

C) $2x^3 + 8x^2 - 6x$

30. What is the result when $x^3 + 2x^2 - x$ is added to $3x^2 - 4x + 2$?

A) $x^3 + 5x^2 - 5x + 2$ B) $x^3 + 5x^2 - 3x + 2$ C) $x^3 + 5x^2 - 4x + 2$

31. What is the result when $4x^2 - 3x + 7$ is subtracted from $2x^3 - x^2 + 5x$?

A) $2x^3 + 5x^2 - 7x - 7$ B) $2x^3 - 5x^2 + 7x - 7$ C) $2x^3 - 5x^2 + 8x - 7$

32. What is the result when $2x^3 - 3x^2 + 4x$ is subtracted from $3x^3 + 5x - 1$?

A) $x^3 + 3x^2 + x - 1$ B) $2x^3 - 6x^2 - x + 1$ C) $2x^3 - 6x^2 + x - 1$

33. What is the product of $(x + 4)$ and $(x^2 - 2x + 3)$?

A) $x^3 - 2x^2 + 5x - 12$ B) $x^3 - 2x^2 + 5x + 12$ C) $x^3 + 2x^2 - 5x + 12$

34. What is the product of $(2x + 1)$ and $(x^2 + 3x - 2)$?

A) $2x^3 + 7x^2 - x - 2$ B) $2x^3 + 7x^2 + x - 2$ C) $2x^3 + 7x^2 - x - 4$

35. Determine the quotient when $2x^3 - 4x^2 + 6x - 8$ is divided by $x + 2$.

A) $2x^2 - 8x + 22 - \frac{50}{x+2}$ B) $2x^2 + 8x + 22 + \frac{52}{x+2}$

C) $2x^2 - 8x + 22 - \frac{52}{x+2}$

36. What is the quotient when $3x^4 + 4x^3 - 5x^2 + 6x - 7$ is divided by $x + 2$?

A) $3x^3 - 2x^2 - x + 8 + \frac{-23}{x+2}$ B) $3x^3 - 2x^2 - 2x + 8 + \frac{23}{x+2}$

C) $3x^3 + x^2 - x + 8 + \frac{-23}{x+2}$

37. What is the value of the polynomial $2x^3 - x^2 + 3x - 1$ when $x = 0$?

A) 2 B) -1 C) -3

38. Find the value of the polynomial $x^3 - 2x^2 + 4x - 5$ when $x = 1$.

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

39. Which of the following is a factor of the polynomial $2x^3 - 4x^2 + 2x$?

A) $x - 2$ B) $2x - 1$ C) $x^2 - 2x + 1$

40. Which of the following is a factor of the polynomial $x^3 - 27$?

A) $x - 3$ B) $x + 3$ C) $x^2 + 3$

SECTION 3 - BASIC CONCEPTS IN GEOMETRY

41. If points A, B, and C are collinear, and AB = 5 units, and BC = 3 units, what is AC?

A) 2 units B) 8 units C) 15 units

42. If points A, B, C, and D are collinear and AB = 3 units, BC = 4 units, and CD = 5 units, what is AD?

A) 12 units B) 8 units C) 2 units

43. If the points are X(-2, -3), Y(1, 0), and Z(4, 3), which point lies between the other two?

A) X B) Y C) Z

44. If the points are S(-4, -2), T(-1, 1), and U(2, 4), which point lies between the other two?

A) S B) U C) T

45. In a coordinate system, if points X, Y, and Z are collinear with d(X,Y) = 20 units and d(Y,Z) = 11 units, what is d(X,Z)?

A) 9 units B) 20 units C) 31 units

46. In a coordinate plane, if points X, Y, and Z are collinear with d(X,Y) = 25 units and d(Y,Z) = 10 units, what is d(X,Z)?

A) 15 units B) 35 units C) 10 units

47. Points X, Y, and Z are collinear in a plane. If d(X,Y) = 26 units and d(Y,Z) = 13 units, what is d(X,Z)?

A) 39 units B) 13 units C) 26 units

48. In a coordinate plane, if points X, Y, and Z are collinear with d(X,Y) = 20 units and d(Y,Z) = 8 units, what is d(X,Z)?

A) 12 units B) 28 units C) 20 units

49. Given point A with coordinates (1, -2) and point B with coordinates (-3, 5), what is d(A,B)?

A) $\sqrt{65}$ B) 7 C) $\sqrt{78}$

50. If the coordinates of point A are (0, 0) and the coordinates of point B are (3, 4), what is d(A,B)?

A) 3 B) 4 C) 5

51. If the coordinates of point A are (2, 5) and the coordinates of point B are (-3, -4), what is d(A,B)?

A) $\sqrt{75}$ B) $\sqrt{68}$ C) $\sqrt{106}$

52. Given point A with coordinates (5, -2) and point B with coordinates (1, 6), what is d(A,B)?

A) $\sqrt{4}$ B) $4\sqrt{5}$ C) $\sqrt{5}$

53. If segment AB has a length of 10 units and point M is the midpoint of AB, what is the length of AM?

A) 2 B) 10 C) 5

54. Given AB = 18 and M is the midpoint of AB, what is the length of AM?

A) 4 B) 18 C) 9

55. Given the points M(-2, -3) and N(4, 5), what is the distance between them?

A) $\sqrt{52}$ units B) 10 units C) 8 units

56. Given the points E(0, 0) and F(4, 3), what is the distance between them?

A) 5 units B) $\sqrt{18}$ units C) $\sqrt{29}$ units

57. If the coordinates of points C(-5, -1) and D(2, 3) are provided, what is the distance between them?

A) $\sqrt{52}$ units B) 8 units C) $\sqrt{65}$ units

58. Given the points J(-1, 1) and K(4, 6), what is the distance between them?

A) 5 units B) $\sqrt{26}$ units C) $\sqrt{50}$ units

59. If the coordinates of points L(2, -3) and M(-4, 1) are provided, what is the distance between them?

A) $\sqrt{34}$ units B) $\sqrt{52}$ units C) $\sqrt{26}$ units

60. Given points P(1, -1), Q(5, 2), and R(8, 5), which point lies between the other two?

A) P B) Q C) R

SECTION 4 - PARALLEL LINES

61. Which statement is true about the corresponding angles formed when a transversal intersects two parallel lines?

A) They are supplementary B) They are complementary C) They are congruent

62. If two lines are parallel and a transversal intersects them, what is true about the alternate exterior angles?

A) They are congruent B) They are supplementary C) They are complementary

63. Which statement is true about the corresponding angles formed when a transversal intersects two parallel lines?

A) They are supplementary B) They are complementary C) They are congruent

64. Two parallel lines are intersected by a transversal. If measure of one of the alternate interior angles is 75° then the measure of the other angle is

A) 115° B) 75° C) 15°

65. What is the measure of each corresponding angle when a transversal intersects two parallel lines?

A) 90° B) 180° C) They vary depending on the angle

66. ΔPQR has ∠P = 90° and ∠Q = 30°. What is the measure of ∠R?

A) 60° B) 45° C) 30°

67. In a quadrilateral, if one angle measures 70°, another measures 80°, and the third measures 90°, what is the measure of the fourth angle?

A) 120° B) 130° C) 140°

68. A transversal intersects two parallel lines. If the measure of one of the angles is 40° then the measure of its corresponding angle is

A) 90° B) 40° C) 50°

69. If two parallel lines are intersected by a transversal, and one angle measures 60°, what is the measure of its corresponding angle?

A) 120° B) 30° C) 60°

70. If a transversal intersects two parallel lines, and one angle measures 70°, what is the measure of its alternate exterior angle?

A) 110° B) 70° C) 20°

71. If two parallel lines are intersected by a transversal, and one angle measures 100°, what is the measure of its corresponding angle?

A) 100° B) 80° C) 120°

72. In a parallelogram, if one angle measures 60°, what is the measure of its consecutive exterior angle?

A) 60° B) 120° C) 180°

73. Two parallel lines are intersected by a transversal. If measure of one of the alternate interior angles is 75° then the measure of the other angle is .....

A) 105° B) 15° C) 75°

74. If a transversal intersects two parallel lines, then the sum of interior angles on the same side of the transversal is .....

A) 180° B) 90° C) 0°

75. The number of angles formed by a transversal of two lines is .....

A) 2 B) 4 C) 8

76. If one of the interior angles formed by parallel lines and a transversal measure 70°, what is the measure of its corresponding angle?

A) 70° B) 110° C) 180°

77. If ∠X = 70° and ∠Y = 90° in ΔXYZ, what is the measure of ∠Z?

A) 30° B) 70° C) 20°

78. If two lines are parallel and a transversal intersects them, what is the sum of the angles on the same side of the transversal and on the same side of one of the parallel lines?

A) 180 degrees B) 360 degrees C) 90 degrees

79. If one of the interior angles formed by parallel lines and a transversal measure 110°, what is the measure of its corresponding angle?

A) 70° B) 110° C) 180°

80. ΔABC has ∠A = 80° and ∠B = 60°. What is the measure of ∠C?

A) 30° B) 40° C) 100°

SECTION 5 - TRIANGLES

81. In triangle LMN, if angle L = 55° and angle N = 75°, what is the measure of angle M?

A) 50° B) 40° C) 60°

82. In triangle DEF, if angle D = 80° and angle F = 45°, what is the measure of angle E?

A) 75° B) 55° C) 65°

83. In triangle XYZ, if angle X = 80° and angle Y = 60°, what is the measure of angle Z?

A) 40° B) 50° C) 100°

84. In triangle PQR, if angle P = 55° and angle R = 75°, what is the measure of angle Q?

A) 55° B) 60° C) 50°

85. In triangle DEF, if angle D = 65° and angle F = 55°, what is the measure of angle E?

A) 70° B) 80° C) 60°

86. In triangle PQR, if angle P = 45° and angle R = 75°, what is the measure of angle Q?

A) 70° B) 60° C) 80°

87. In triangle LMN, if angle L = 55° and angle N = 85°, what is the measure of angle M?

A) 40° B) 60° C) 90°

88. In triangle XYZ, if angle X = 70° and angle Y = 50°, what is the measure of the exterior angle at vertex Z?

A) 70° B) 80° C) 120°

89. In triangle ABC, if angle A = 60° and angle B = 70°, what is the measure of the exterior angle at vertex C?

A) 120° B) 130° C) 140°

90. In triangle DEF, if angle D = 75° and angle E = 55°, what is the measure of the exterior angle at vertex F?

A) 130° B) 110° C) 100°

91. In triangle DEF, if angle D = 85° and angle E = 65°, what is the measure of the exterior angle at vertex F?

A) 60° B) 150° C) 130°

92. In triangle XYZ, if angle X = 80° and angle Y = 50°, what is the measure of the exterior angle at vertex Z?

A) 50° B) 100° C) 130°

93. The measures of angles of a triangle are in the ratio 6 : 8 : 10. Find the measures of each angle.

A) 45°, 60°, 75° B) 54°, 72°, 90° C) 36°, 48°, 65°

94. The measures of angles of a triangle are in the ratio 12 : 15 : 18. Find the measures of each angle.

A) 60°, 75°, 90° B) 72°, 90°, 108° C) 48°, 60°, 72°

95. The measures of angles of a triangle are in the ratio 4 : 5 : 6. Find the measures of each angle.

A) 48°, 60°, 72° B) 36°, 45°, 54° C) 60°, 75°, 90°

96. The measures of angles of a triangle are in the ratio 10 : 15 : 18. Find the measures of each angle.

A) 60.2°, 90.6°, 108.2° B) 41.8°, 62.7°, 74.8° C) 80.2°, 120.1°, 144.3°

97. In a RIGHT ANGLED triangle, what is the measure of the largest angle?

A) 30° B) 60° C) 90°

98. What is the ratio of the lengths of the sides in a 30° - 60° - 90° triangle?

A) $1 : \sqrt{3} : 2$ B) $1 : 3 : \sqrt{2}$ C) $\sqrt{1} : 3 : 2$

99. What is the length of the hypotenuse in a 30° - 60° - 90° triangle if the shorter leg measures 7 units?

A) 7 units B) $7\sqrt{3}$ units C) 14 units

100. If the length of the shorter leg in a 30° - 60° - 90° triangle is 5 units, what is the length of the longer leg?

A) 5 units B) $5\sqrt{3}$ units C) 10 units

ANSWER

Q.No	ANS	Q.No	ANS	Q.No	ANS	Q.No	ANS	Q.No	ANS
1	A	21	A	41	B	61	C	81	A
2	C	22	B	42	A	62	A	82	B
3	A	23	A	43	B	63	C	83	A
4	C	24	B	44	C	64	B	84	C
5	A	25	B	45	C	65	C	85	C
6	C	26	C	46	B	66	A	86	B
7	A	27	A	47	A	67	A	87	A
8	C	28	B	48	B	68	B	88	C
9	C	29	B	49	A	69	C	89	B
10	B	30	A	50	C	70	B	90	A
11	B	31	C	51	C	71	A	91	B
12	B	32	A	52	B	72	B	92	C
13	C	33	C	53	C	73	C	93	A
14	A	34	A	54	C	74	A	94	C
15	A	35	C	55	B	75	C	95	A
16	B	36	A	56	A	76	A	96	B
17	A	37	B	57	C	77	C	97	C
18	B	38	A	58	C	78	A	98	A
19	B	39	C	59	B	79	B	99	C
20	C	40	A	60	B	80	B	100	B