



MATHEMATICS TALENT HUNT 2025

Organized by : The Pi Group of Mathematics (TPGM), Cooch Behar

Registration No. – S0031696 of 2022-23

Class – IX

Full Mark : 100

Time : 1 Hr 30 mins.

Instructions to the Candidates

1. Candidates must write their Name, Class, Roll No. allotted for the exam and Name of their School correctly in the specific places of the answer sheet.
2. There are 50 questions of 2 marks each. Four possible options of answer are given for each question.
3. Candidates should choose the correct option and completely darken the circle with that option written in it in the answer sheet (OMR). For example, say the correct option for Question Number 10 is (c), then the candidate should darken the circle completely with 'c' written in it against the number 10 of the answer sheet. Use black ball pen or pencil for darkening.
4. There is no negative marking.

1. The value of 'm' for which $\left[\left\{ \left(\frac{1}{7^2} \right)^{-2} \right\}^{-\frac{1}{3}} \right]^{\frac{1}{4}} = 7^m$ is

- (a) $-\frac{1}{3}$ (b) $\frac{1}{4}$ (c) -3 (d) 2

2. The value of $\sqrt{5 - 2\sqrt{6}}$ is

- (a) $\sqrt{3} - \sqrt{2}$ (b) $\sqrt{2} - \sqrt{3}$ (c) $\sqrt{5} - \sqrt{6}$ (d) $\sqrt{5} + \sqrt{6}$

3. The remainder when $f(x) = x^5$ is divided by $g(x) = x^2 - 9$ is

- (a) $81x$ (b) $81x + 10$ (c) $243x + 81$ (d) 0

4. If each edge of a cube is increased by 50%, the percentage of increase in its surface area is

- (a) 50% (b) 75% (c) 100% (d) 125%

5. If $a^b = 64$ ($b \neq 1$) then the sum of the greatest possible values of $\frac{a}{b}$ and $\frac{b}{a}$ is

- (a) $\frac{13}{4}$ (b) 7 (c) 67 (d) 4

6. If the mirror image of the point P (5, 2) in x-axis is the point Q and the image of Q in y-axis is R then, the co-ordinate of R is

- (a) (5, -2) (b) (-5, -2) (c) (-5, 2) (d) (2, 5)

7. The value of $\frac{(2.3)^3 - 0.027}{(2.3)^2 + 0.69 + 0.09}$ is

- (a) 2 (b) 3 (c) 2.327 (d) 2.273

8. The square root of $\frac{a^2}{4} + \frac{1}{a^2} - \frac{1}{a} + \frac{a}{2} - \frac{3}{4}$ is

- (a) $\frac{a}{2} - \frac{1}{a} + \frac{1}{2}$ (b) $\frac{a}{2} + \frac{2}{a} - 1$ (c) $\frac{a}{2} + \frac{1}{a} - \frac{1}{2}$ (d) $\frac{a}{2} - \frac{2}{a} - \frac{1}{2}$

9. Which of the following numbers can be represented as non-terminating, repeating decimal?

- (a) $\frac{39}{24}$ (b) $\frac{3}{16}$ (c) $\frac{3}{11}$ (d) $\frac{137}{25}$

10. Find the wrong number in the given series. 142, 119, 100, 83, 65, 59, 52

- (a) 119 (b) 83 (c) 65 (d) None of these

11. Examine the following relationships of members of a family of six persons – A, B, C, D, E and F.
- The number of male equals that of female.
 - A and E are sons of F.
 - D is the mother of two, one boy and one girl.
 - B is the son of A.
 - At present there is one married couple in the family.

Which one of the following inferences can be drawn from the above?

- (a) A, B and C are all female. (b) A is the husband of D.
(c) D is the grand daughter of F. (d) E and F are children of D.

12. The number of zeros, the polynomial $p(x) = (x - 2)^2 + 4$ can have, is

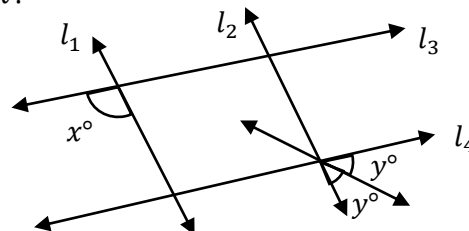
- (a) 1 (b) 2 (c) 0 (d) 3

13. The auto-rikshaw fare in a city is changed @ ₹ 10 for the first kilometre and @ ₹ 4 per kilometre for subsequent distance covered. The linear equation to express the statement is

- (a) $y = 4x + 10$ (b) $y = 4x + 6$ (c) $y + 4x = 10$ (d) $y + 4x = 6$

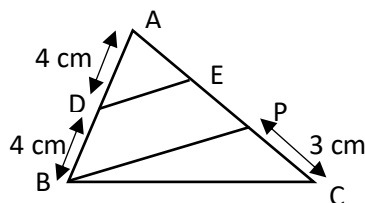
14. In the given fig. if $l_1 \parallel l_2$ and $l_3 \parallel l_4$ then, what is y in terms of x ?

- (a) $y = 90 + x$
(b) $y = 90 + 2x$
(c) $y = 90 - \frac{x}{2}$
(d) $y = 90 - 2x$



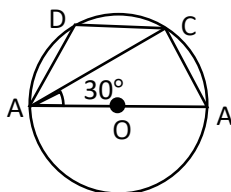
15. In the given figure D is the mid-point of AB and $PC = \frac{1}{2} AP = 3$ cm. If $AD = DB = 4$ cm and $DE \parallel BP$ then, $AE = ?$

- (a) 4 cm
(b) 3 cm
(c) 2 cm
(d) 5 cm



16. In the figure AOB is a diameter of the circle such that $CD \parallel AB$. If $\angle BAD = 30^\circ$ then, $\angle CAD = ?$

- (a) 30°
(b) 45°
(c) 60°
(d) 50°



17. The surface area of a football is $100\pi \text{ cm}^2$. The volume of the air in it is

- (a) $\frac{200}{3}\pi \text{ cm}^3$ (b) $\frac{350}{3}\pi \text{ cm}^3$ (c) $\frac{500}{3}\pi \text{ cm}^3$ (d) $\frac{400}{3}\pi \text{ cm}^3$

18. A die is rolled 300 times and the following outcomes are recorded

Outcomes	1	2	3	4	5	6
Frequency	42	60	55	53	60	30

The probability of getting a number more than 4 is

- (a) 0.2 (b) 0.3 (c) 0.477 (d) 0.523

19. The area of the figure ABCD formed by joining A (-1 , 1), B (5 , 1), C (5 , 6) and D (-1 , 6) is
 (a) 40 sq. unit (b) 30 sq. unit (c) 20 sq. unit (d) 16 sq. unit

20. If the perimeter of an isosceles triangle is 32 cm and the ratio of the equal side to its base is 3 : 2 then, area of the triangle is

- (a) $16\sqrt{2}$ sq. cm (b) $20\sqrt{2}$ sq. cm (c) $30\sqrt{2}$ sq. cm (d) $32\sqrt{2}$ sq. cm

21. The sum of the radius of the base of a solid cylinder and the height of the cylinder is 15 cm. If total surface area of the cylinder is 660 cm^2 then the volume of the cylinder is

- (a) 1232 cm^3 (b) 1256 cm^3 (c) 1296 cm^3 (d) 1536 cm^3

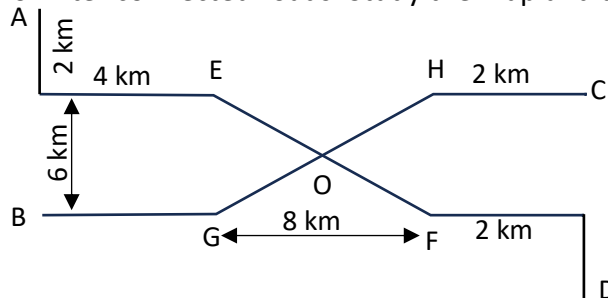
22. The volume of a cube which can be inserted exactly in a sphere of radius $\frac{3\sqrt{3}}{2}$ cm is

- (a) 24 cm^3 (b) 27 cm^3 (c) 18 cm^3 (d) 30 cm^3

23. In the following series replace the '?' with suitable option. 3, 6, 18, 72, ?

- (a) 144 (b) 216 (c) 288 (d) 360

24. The figure below shows a map of inter connected roads. Study the map and answer the following question.



O is the intersection of roads AD and BC. Also O is the middle point of roads GH and EF. If Rahul starts from the point A and reaches to point C then, the total distance travelled by Rahul is

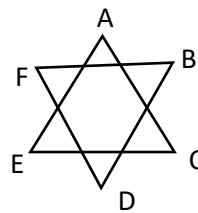
- (a) 18 km (b) 16 km (c) 14 km (d) 12 km

25. If $\sqrt{2} = 1.4142$ then, $\frac{\sqrt{2}-1}{\sqrt{2}+1}$ is equal to

- (a) 0.1718 (b) 5.8282 (c) 0.4142 (d) 0.471

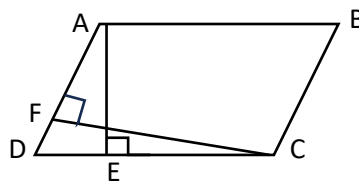
26. In the given figure $\angle A + \angle B + \angle C + \angle D + \angle E + \angle F = ?$

- (a) 180°
 (b) 360°
 (c) 540°
 (d) 90°



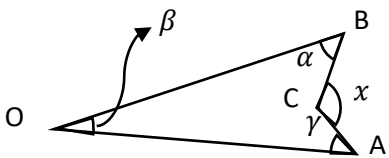
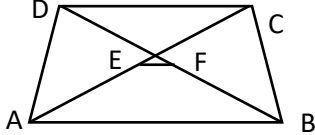
27. In the given diagram ABCD is a parallelogram. If AB = 12 cm, AE = 7.5 cm and CF = 15 cm then, AD = ?

- (a) 3 cm
 (b) 6 cm
 (c) 8 cm
 (d) 10.5 cm



28. A river is 1.5 m deep and 30 m wide is flowing at the rate of 3 km/hr. The volume of water that runs into the sea per minute is

- (a) 2000 m^3 (b) 2250 m^3 (c) 2500 m^3 (d) 2750 m^3

29. If the area of the base of a conical tent is 154 m^2 and its volume is 1232 m^3 , then the height of the tent is
 (a) 12 m (b) 18 m (c) 24 m (d) 25 m
30. If each of $(-2, 2)$, $(0, 0)$ and $(2, -2)$ is a solution of a linear equation in x and y , then the equation is
 (a) $x - y = 0$ (b) $x + y = 0$ (c) $-2x + y = 0$ (d) $-x + 2y = 0$
31. The area of an equilateral triangle is $81\sqrt{3} \text{ cm}^2$. Its height is
 (a) $9\sqrt{3} \text{ cm}$ (b) $6\sqrt{3} \text{ cm}$ (c) $18\sqrt{3} \text{ cm}$ (d) 9 cm
32. The simplest form of $0.12\bar{3}$ is
 (a) $\frac{41}{330}$ (b) $\frac{37}{338}$ (c) $\frac{41}{333}$ (d) None of these
33. Zero of the zero polynomial is
 (a) 0 (b) 1
 (c) every real number (d) not defined
34. If $a + b + c = 0$ then, $\left(\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab}\right) = ?$
 (a) 1 (b) 0 (c) -1 (d) 3
35. In the given figure $x = ?$
 (a) $\alpha + \beta - \gamma$ (b) $\alpha - \beta + \gamma$
 (c) $\alpha + \beta + \gamma$ (d) $\alpha + \gamma - \beta$
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36. If the height and the radius of a cone are doubled, the volume of the cone becomes
 (a) 3 times (b) 4 times (c) 6 times (d) 8 times
37. In a trapezium ABCD, if E and F be the mid-point of the diagonals AC and BD respectively then, $EF = ?$
 (a) $\frac{1}{2}(AB - CD)$ (b) $\frac{1}{2}CD$
 (c) $\frac{1}{2}(AB + CD)$ (d) None of these
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38. If $(x^2 + kx - 3) = (x - 3)(x + 1)$ then, $k = ?$
 (a) 2 (b) -2 (c) 3 (d) -1
39. $(625)^{0.16} \times (625)^{0.09} = ?$
 (a) 5 (b) 25 (c) 125 (d) 25.25
40. If $\frac{x}{y} + \frac{y}{x} = -1$ ($x, y \neq 0$), the value of $x^3 - y^3$ is
 (a) 1 (b) -1 (c) 0 (d) None of these
41. What should be the correct sign to balance the following equality? $17 - 3 \times 6 = 45$
 (a) $\times$, = and - (b) -, $\times$ and = (c) =, $\times$ and - (d) $\times$, - and =
42. If P (1, 2), Q (4, 6) and R (5, 7) are three vertices of a parallelogram PQRS then, coordinate of S is
 (a) (2, 4) (b) (3, 4)
 (c) (2, 3) (d) (2, 0)

43. If $x^{\frac{3}{2}} = \left(x^{\frac{3}{2}}\right)^x$, $x \neq 0$ then x is

- (a) $\frac{3}{2}$ (b) $\frac{9}{4}$ (c) $\frac{16}{25}$ (d) $\frac{8}{27}$

44. If $f(x+2) = x^2 + 2x + 3$ then, $f(x)$ is

- (a) $x^2 + 2x + 4$ (b) $x^2 - 2x + 3$ (c) $x^2 + 3x - 2$ (d) $x^2 - 2x - 3$

45. The ratio between the area of an equilateral triangle and its circumscribing circle is

- (a) $6\pi : 3\sqrt{3}$ (b) $\pi : \sqrt{3}$ (c) $3\sqrt{3} : \pi$ (d) $\sqrt{3} : 4\pi$

46. If distance between (a, b) and $(1, 1)$ is $\sqrt{a^2 + b^2}$ then which of the following relation is true

- (a) $a - b = 1$ (b) $a + b = 1$ (c) $a = b$ (d) $a + b = 2$

47. If $\frac{a}{b} + \frac{b}{a} = 2$ then, $\left(\frac{a}{b}\right)^{10} - \left(\frac{b}{a}\right)^{10}$ is equal to

- (a) $\frac{2^{10}-1}{2^{10}}$ (b) 2 (c) 0 (d) $\frac{2^{20}+1}{2^{10}}$

48. An irrational number between 2 and 2.5 is

- (a) $\sqrt{11}$ (b) $\sqrt{5}$ (c) $\sqrt{22.5}$ (d) $\sqrt{12.5}$

49. In a bag there are 100 bulbs out of which 30 are bad ones. A bulb is taken out of the bag at random. The probability of the selected bulb is to be good is

- (a) 0.50 (b) 0.70 (c) 0.30 (d) None of these

50. In the figure chord AB and CD of a circle intersect at a point P. If $\angle CPB = 120^\circ$ and $\angle ACP = 70^\circ$ then $x = ?$

- (a) 60°
(b) 70°
(c) 50°
(d) 80°

