

CLASS IX MATHS FULL LENGTH TEST-1

TIME: 3 HOURS

M.M.: 80

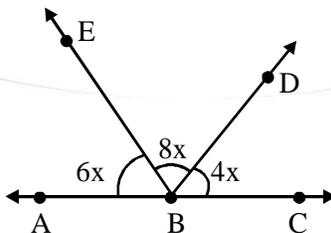
GENERAL INSTRUCTIONS

1. The question paper consists of **40 questions** divided into **four sections A, B, C & D**.
2. Section **A** comprises of **20 questions** of **1 mark** each. Section **B** comprises of **6 questions** of **2 marks** each. Section **C** comprises of **8 questions** of **3 marks** each. Section **D** comprises **6 questions** of **4 marks** each.

SECTION-A

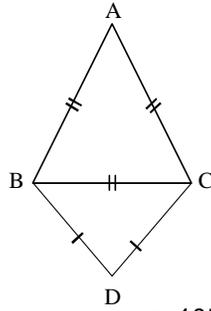
MCQ (Q. 1-10)

1. The difference between the highest and lowest values of the observations is called
a. Frequency b. Mean c. Range d. Class intervals
2. A fair coin is tossed 100 times and the head occurs 58 times and tail 42 times. The experimental probability of getting a head is
a. $1/2$ b. $21/50$ c. $29/50$ d. $42/58$
3. A rational number between 2 and 3 is
a. 2.010010001 ... b. $\sqrt{6}$ c. $5/2$ d. $4 - \sqrt{2}$
4. The condition that the equation $ax + by + c = 0$ represents a linear equation in two variables is
a. $a \neq 0, b = 0$ b. $b \neq 0, a = 0$ c. $a = 0, b = 0$ d. $a \neq 0, b \neq 0$
5. Which of the following is a zero of the polynomial $2x^3 + 3x^2 - 11x - 6$?
a. -2 b. $1/2$ c. -3 d. 3
6. In a cylinder, if radius is doubled and height is halved, curved surface area will be
a. halved b. doubled c. same d. four times
7. In figure, $\angle DBC$ equals

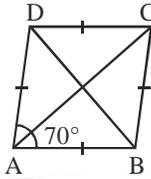


- a. 40° b. 60° c. 80° d. 100°

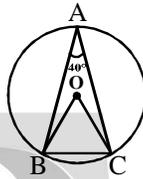
8. In figure, ABC is an equilateral triangle and BDC is an isosceles right triangle, right angled at D. $\angle ABD$ equals



- a. 45° b. 60° c. 105° d. 120°
9. In the given figure, ABCD is a rhombus, if $\angle DAB = 70^\circ$, then $\angle CDB$ is



- a. 45° b. 55° c. 35° d. 65°
10. What is the value of x from the given figure, in which O is the centre of the circle?



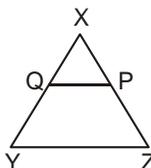
- a. 50° b. 60° c. 45° d. 55°

FILL IN THE BLANKS (11 to 15)

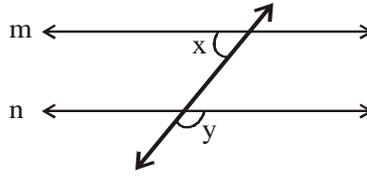
11. The coordinates of the point(s) which lie on positive direction of y-axis and 4 units away from the origin is _____.
12. The value of $[(16)^{1/2}]^{1/2} =$ _____.
13. The sum of the lengths of any two sides of a triangle is _____ than the length of the remaining side.
14. Total surface area of hemisphere of radius r is _____.
15. The class marks of a frequency distribution are 15, 20, 25, The class corresponding to the class marks 20 is _____.

SHORT ANSWER TYPE (16 to 20)

16. A conical tank is 3 m deep and its circular top has radius 0.7 m. Find the capacity of the tank in kilolitres. (Take, $\pi = 22/7$).
17. Evaluate $\sqrt[3]{(343)^{-2}}$
18. In the adjoining figure, if $QX = \frac{1}{2} XY$, $PX = \frac{1}{2} XZ$ and $QX = PX$, then using Euclid's geometry show that $XY = XZ$.

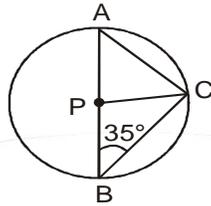


19. Evaluate $(102)^3$ using identity.
20. In figure, if $x = 61^\circ$ and $y = 118^\circ$. Is $m \parallel n$? Explain.



SECTION-B

21. In the given figure, A and B are the end points of a diameter of a circle with centre at P and C is a point on the circumference of the circle such that $\angle ABC = 35^\circ$, then find the value of $\angle ACP$.



22. Find the image of point $(-2, 3)$ under : a. X-axis b. Y-axis c. Origin

OR

The perpendicular distance of a point from the x-axis is 2 units and the perpendicular distance from the y-axis is 3 units. Write the co-ordinates of the point if it lies in the :

- i. I Quadrant ii. II Quadrant iii. III Quadrant iv. IV Quadrant
23. Write coordinates of 2 points which lie on line $x + y = 8$. How many such point exist?
24. Two coins are tossed simultaneously 300 times and it is found that two heads appeared 135 times, one head appeared 111 times and no head appeared 54 times. find probability of getting
- i. 2 heads ii. 1 head iii. 0 head iv. 1 tail
25. Plot the following points and write the name of the figure obtained by joining them in order :
 $P(-3, 2)$, $Q(-7, -3)$, $R(6 -3)$, $S(2, 2)$. (Don't use graph paper)
26. The diameter of a roller is 84 cm and its length is 120 cm. It takes 500 complete revolutions to move once over to level a playground. Find the area (in m^2) of the playground. (Take, $\pi = 22/7$)

SECTION-C

27. The curved surface area of a cylinder is 5500 cm^2 and the circumference of the base is 110cm. Find the height and volume of the cylinder.

OR

24 solid iron spheres, each of radius r and surface area S are melted to form a sphere with surface area S' . Find the radius r' of the new sphere and ratio of their surface areas.

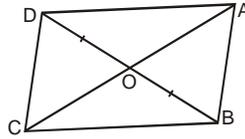
28. Graphically represent the equation $2x + 1 = x - 3$ on the
 a. number line? b. cartesian plane?
29. Simplify $\left(\frac{9}{16}\right)^{3/2} \times \left(\frac{36}{49}\right)^{5/2} \div \left(\frac{343}{216}\right)^{-5/3}$
30. The taxi fare in a city is charged as: Rate for the first kilometer of journey is Rs. 15 and the rate for the subsequent distance covered is Rs. 10 per km. Write the linear equation to express the above statement in standard form.

31. If two circles intersect at two points, then prove that their centres lie on the perpendicular bisector of the common chord.

OR

In figure, diagonals AC and BD of quadrilateral ABCD intersect at O such that $OB = OD$.

If $AB = CD$, then show that: (i) $\text{ar}(\text{DOC}) = \text{ar}(\text{AOB})$ (ii) $\text{ar}(\text{DCB}) = \text{ar}(\text{ACB})$ (iii) $DA \parallel CB$ or ABCD is a parallelogram.



32. Construct a $\triangle ABC$ in which $BC = 3.4$ cm, $AB - AC = 1.5$ cm and $\angle B = 45^\circ$. Write steps of constructions.

33. Find mean of the following distribution :

X	10	20	30	40	50	60	70
f	5	15	16	18	16	20	10

34. A triangle and a parallelogram have the same base and the same area. If the sides of the triangle are 15 cm, 14 cm and 13 cm and the parallelogram stands on the base 15 cm, find the height of parallelogram.

SECTION-D

35. ABCD is a rhombus and P, Q, R and S are the mid-points of the sides AB, BC, CD and DA respectively. Show that the quadrilateral PQRS is a rectangle.

OR

Prove that the bisector of the angles of a parallelogram enclose a rectangle.

36. In $\triangle ABC$, the bisectors of $\angle B$ and $\angle C$ intersect each other at a point O.

Prove that $\angle BOC = 90^\circ + \frac{1}{2} \angle A$.

37. The polynomial $p(x) = x^4 - 2x^3 + 3x^2 - ax + 3a - 7$ when divided by $(x + 1)$ leaves the remainder 19. Find the value of a. Also find the remainder, when $p(x)$ is divided by $x + 2$.

OR

Find the values of a and b so that $(x + 1)$ and $(x - 1)$ are factors of $x^4 + ax^3 - 3x^2 + 2x + b$.

38. Find the values of a and b if : $\frac{7 + 3\sqrt{5}}{3 + \sqrt{5}} - \frac{7 - 3\sqrt{5}}{3 - \sqrt{5}} = a + \sqrt{5}b$

OR

Find the value of: $\frac{1}{3 - \sqrt{8}} - \frac{1}{\sqrt{8} - \sqrt{7}} + \frac{1}{\sqrt{7} - \sqrt{6}} - \frac{1}{\sqrt{6} - \sqrt{5}} + \frac{1}{\sqrt{5} - 2}$

39. A hemispherical bowl of internal and external diameters 6 cm and 10 cm, respectively is melted and formed into a right circular cylinder of radius 14 cm. Find the height of the cylinder.

OR

A right triangle ABC with sides 5 cm, 12 cm and 13 cm is revolved about the side 12 cm. Find the volume of the solid so obtained. Also, find the volume if it is revolved about the side 5cm.

40. The length of 40 leaves of a plant are measured correct to one millimetre, and the obtained data is represented in the following table:

Length (in mm)	118-126	127-135	136-144	145-153	154-162	163-171	172-180
No. of leaves	3	5	9	12	5	4	2

Draw a histogram and frequency polygon to represent the given data.