CBSE (CLASS – IX) MATH FINAL EXAM MOCK TEST

FULL MARKS : 90 **MAX. TIME : 3 hrs**

Section: A (1 * 8 = 8)

1. Any point on the line x + y = 0 is of form

a. (a, a) **b.** $(0, a)$ **c.** $(a, 0)$ **d.** $(a, -a)$

2. The coefficient of y in the equation 3(2x – y) + x + 2y = 5 is

a. 7 **b.** -5 **c.** -1 **d.** 1

3. If in a sphere, volume and surface area are numerically equal, then radius will be:

a. 1 **b.** 3 **c.** 2 **d.** 4

4. The length of longest pole that can be put in a room of dimensions (10m x 10m x 5m) is

a. 15m **b.** 16m **c.** 10m **d.** 12m

5. If in a quadrilateral, diagonals are equal, then it cannot be a :

a. Square **b.** Rhombus **c.** Parallelogram **d.** Rectangle

6. The median of a triangle divide it into two

a. Triangles of equal area **b.** Right triangles **c.** Equilateral triangles **d.** Isosceles triangles.

7. A fair die is thrown. The probability that a prime number will occur is

a. $\frac{2}{3}$ **b.** $\frac{1}{2}$ **c.** $\frac{3}{5}$ **d.** $\frac{1}{6}$

8. If the mean of x, x +2, x+4, x+ 6, x+ 8 is 24, then x =

a. 22 **b.** 21 **c.** 20 **d.** 24

Section: B (2 * 6 = 12)

9. The curved surface area of a right circular cylinder of height 14 cm is 88 cm^2. Find the diameter of the base of the cylinder. Assume $\pi = \frac{22}{7}$.

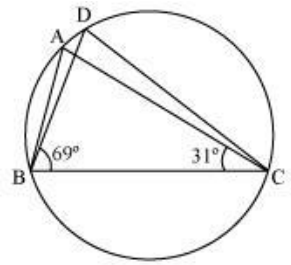
10. In a cricket math, a batswoman hits a boundary 6 times out of 30 balls she plays. Find the probability that she did not hit a boundary.

11. The blood groups of 30 students of Class VIII are recoded as follows:
A, B, O, O, AB, O, A, O, B, A, O, B, A, O, O, A, AB, O, A, A, O, O, AB, B, A, O, B, A, B, O.
Represent this data in the form of a frequency distribution table.

12. The following observations have been arranged in ascending order. If the median of the data is 63, find the value of **x**. 29, 32, 48, 50, x, x + 2, 72, 78, 84, 95

13. A chord of a circle is equal to the radius of the circle. Find the angle subtended by the chord at a point on the minor arc and also at a point on the major arc.

14. In the given figure, ∠ABC = 69°, ∠ACB = 31°, find ∠BDC.



Section: C (3 * 10 = 30)

15. Give the geometric representation of $y = 3$ as an equation
i) In one variable ii) in two variables

16. Give the equations of two lines passing through (2, 14). How many more such lines are there, and why?

17. A metal pipe is 77 cm long. The inner diameter of a cross section is 4 cm, the outer diameter being 4.4 cm. Find

i) Inner curved surface area ii) Outer curved surface area iii) Total surface area (Assume $\pi = \frac{22}{7}$)

18. 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.

19. 1500 families with 2 children were selected randomly, and the following data were recorded:

Number of girls in a family	2	1	0
Number of families	475	814	211

Compute the probability of a family, chosen at random, having (i) 2 girls (ii) 1 girl (iii) No girl

20. The following number of goals was scored by a team in a series of 10 matches:
2, 3, 4, 5, 0, 1, 3, 3, 4, 3
Find the mean, median and mode of these scores.

21. Construct a triangle ABC in which BC = 7 cm, ∠B = 75° and AB + AC = 13 cm.

OR

Construct a triangle XYZ in which ∠Y = 30°, ∠Z = 90° and XY + YZ + ZX = 11 cm.

22. If the diagonals of a parallelogram are equal, then show that it is a rectangle.

23. P and Q are any two points lying on the sides DC and AD respectively of a parallelogram ABCD. Show that, $\text{ar}\Delta(\text{APB}) = \text{ar}\Delta(\text{BQC})$.

24. In a triangle ABC, E is the mid-point of median AD. Show that, $\text{ar}\Delta(\text{BED}) = \frac{1}{4}\text{ar}\Delta(\text{ABC})$

Section: D (4 * 10 = 40)

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

26. Prove that parallelograms on the same base and between same parallels have the same area.

27. 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.

28. The taxi fare in a city is as follows: For the first kilometre, the fares is Rs 8 and for the subsequent distance it is Rs 5 per km. Taking the distance covered as x km and total fare as Rs y, write a linear equation for this information, and draw its graph.

29. If the work done by a body on application of a constant force is directly proportional to the distance travelled by the body, express this in the form of an equation in two variables and draw the graph of the same by taking the constant force as 5 units. Also read from the graph the work done when the distance travelled by the body is (i) 2 units (ii) 0 units

30. A village having a population of 4000, requires 150 litres of water per head per day. It has a tank measuring 20m x15m x 6m. For how many days will the water of this tank last?
Give measures which can be taken to avoid the wastage of water.

31. Find:- (i) The lateral or curved surface area of a closed cylindrical petrol storage tank that is 4.2 m in diameter and 4.5 m high. (ii) How much steel was actually used, if $\frac{1}{12}$ of the steel actually used was wasted in making the tank. [Assume $\pi = \frac{22}{7}$].

32. 100 surnames were randomly picked up from a local telephone directory and a frequency distribution of the number of letters in the English alphabet in the surnames was found as follows:

(i) Draw a histogram to depict the given information.

(ii) Write the class interval in which the maximum numbers of surname lie.

Number of letters	Number of surnames
1 – 4	6
4 – 6	30
6 – 8	44
8 – 12	16
12 – 20	4

33. In parallelogram ABCD, two points P and Q are taken on diagonal BD such that DP = BQ (see the given figure). Show that:

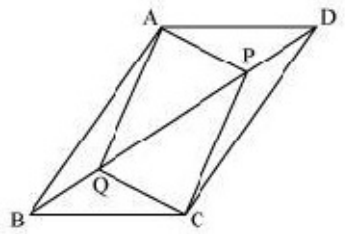
a. $\Delta APD \cong \Delta CQB$

b. AP = CQ

c. $\Delta AQB \cong \Delta CPD$

d. AQ = CP

e. APCQ is a parallelogram



34. Prove that the angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.