MODEL Question
Class - IX
Subject- Mathematics

Time: 3 hours **F.M: 80**

English Version

Group -A

1. Value of $\left(2+\sqrt{3}\right)\left(2-\sqrt{3}\right)$ is

a) – 1 b) 1 c) – 2 d) none

2. Degree of the polynomial $px^2 + qx + rx^4 + s$ is

a) 1 b) 2 c) 4 d) 6

3. If the diagonals of a quadrilateral bisect each other perpendicularly then it will be-

a) Rectangle b) rhombus c) trapezium d) parallelogram

4. A cylinder and a cone are of same radius and same height. Ratio of their volume is

a) 1 : 3 b) 3 : I c) 2 : 3 d) 3 : 2

5. Which of the following will not be a probability of an event?

$(a)\ \frac{2}{3}\ (b)\ \frac{3}{5}\ (c)\ \frac{1}{7}\ (d)\ \frac{3}{2}$

6. Sum of three angles of a triangle-

a) 360° b) 270° c) 180° d) none

7. Which of following statement is correct -

a. Every rational number is an integer.

b. Every integer is a rational number

c. Every integer is not a rational number

d. Every integer is a whole number

8. Which of following statement is correct-

a. Opposite sides of a parallelogram are unequal

b. Opposite angles of a parallelogram are equal

c. Diagonals of a parallelogram bisect each other

d. None of the above

9. Find the value of $\sqrt[3]{1000}$

10. State Remainder Theorem.

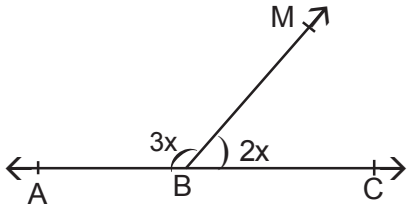
11. What is the co-ordinates of the Origin?

12. (– 3, – 5) point lies in which quadrant?

13. Express the equation 2x + 3y = 9.35 as ax + by + c = 0 and find the value of 'c'.

14. Write Euclid's 5th postulate.

15. In the given figure a ray MB stands on a line ABC. If $\angle ABM = 3x$, $\angle CBM = 2x$, the find the value of 'X'.



16. How many circle can be drawn through three non collinear points?

17. If radius of a sphere is 7cm, find its volume?

18. A Cuboid has 'A' surfaces, 'B' sides and 'C vertices. Find the find the value of (A + B – C).

19. Find the median of the following – 5, 9, 11, 3, 4, 6, 2

Group- B

20. Find the class-mark of the class 65-85.

21. Express $0.\overline{47}$ as p/q where p, q are integers and q≠0

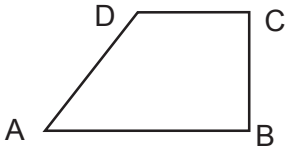
22. If (x+1) is a factor of $X^2 + x + k$ then find the value of x.

23. Write expanded form of $(2x + 3)^3$.

24. If (3) + (5) + (– 8) = 0 find the value of $(3)^3 + (5)^3 + (– 8)^3$ using suitable identities.

25. 

In the given figure if AC=BD the prove that AB=CD.



26. In the given fig. <A:<B:<C:<D=3:5:9:13 find the value of largest angle.

Group-C

27. Locate V2 on the number line.

OR

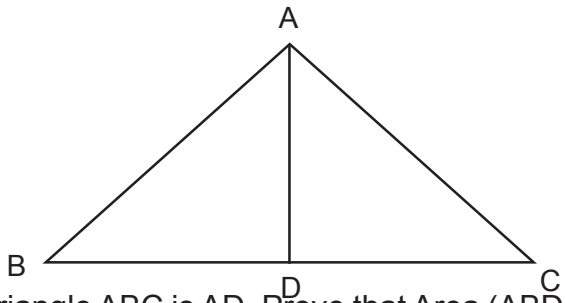
Simplify : $\frac{\sqrt{6}}{\sqrt{3}+\sqrt{2}} + \frac{3\sqrt{2}}{\sqrt{6}+\sqrt{3}} - \frac{4\sqrt{3}}{\sqrt{6}+\sqrt{2}}$

28. Factorise: $12x^2-7x+I$

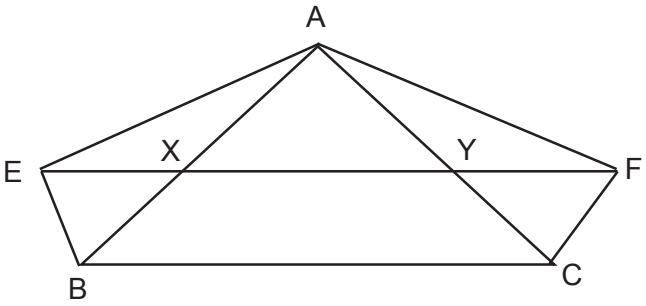
29. Give graphical representation of the equation : 2x+y=3

30. Prove that, Angles opposite to equal side of an isosceles triangle are equal.

Or



Median of a triangle ABC is AD. Prove that Area (ABD)=Area(ACD)

31. 

In ∆ABC ,XY|| BC From point B and C BE||CA and CF||BA are drawn which intersect XY at E and F respectively. Show that area (ΔABC) = area (ΔACF).

OR

In Trapezium ABCD, AB II DC. A line drawn parallel to AC intersect AB at X and BC at Y. Prove that area (ADX) = area (ACY)

32. The length, breadth, and height of a room are 5m, 4m and 3m respectively. Find the cost of the white washing the walls of the room and the ceiling at the rate of rupees 7.50 per m^2.

33. The inner diameter of a cylindrical wooden pipe is 24cm and its outer diameter is 28cm. The length of the pipe is 35cm. Find the mass of the pipe, if 1cm^3 of wood has a mass of 0.6g.

OR

Ratio of the height of two cones is 1:3 and ratio of their radius is 3:1.Find the ratio of their volume.

34. Two coins are tossed simultaneously 500 times , we get Two heads :105 times
One head : 275 times / No heads : 120 times
Find the probability of getting (a) one head (b) two heads (c) no heads .

Group-D

35. Factorise: $x^3+13x^2+32x+20$

or

Factorise: $a^3+b^3+c^3-3abc$

36. 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.

37. Construct a triangle ABC in which BC=7cm , $\angle$ B=75° and AB+AC=13cm.

(Write steps of construction)

38. Show that the bisector of angles of a parallelogram forms a rectangle.

or

ABCD is a rectangle. P, Q, R ,S are the midpoints of AB, BC, CD, DA respectively. Show that PQRS is a rhombus.

39. An umbrella is made by stitching 10 triangular piece of cloth of two different colours. Each piece measuring 20cm, 50cm, 50cm. How much cloth of each colour is required for the umbrella?

40. The following table gives the life time of 400 neon lamps:

Lifetime (in hours)	**Number of lamps**
300-400	14
400-500	56
500-600	60
600-700	86
700-800	74
800-900	62
900-1000	48

(i) Represent the given information with the help of a Histogram, (ii) How many lamps have a life time of more than 700 hours?

Or

Thirty children were asked about the number of hours they watched TV programme in the previous week. The result were found as follows-

1	6	2	3	5	12	5	8	4	8
10	3	4	12	2	8	15	1	17	6
3	2	8	5	9	6	8	7	14	12

(i) Make a group frequency table for the data, taking class width.5.

(ii) How many children watched television for 15 or more hours?