



**INDIAN SCHOOL SOHAR  
FINAL EXAMINATION (2019-20)  
MATHEMATICS**

**CLASS: IX  
DATE: 08.03.2020**

**MAX. MARKS: 80  
DURATION: 3 Hours**

**GENERAL INSTRUCTIONS:**

- All questions are compulsory.
- The question paper consists of **40** questions divided into 4 sections A, B, C, D. Section A comprises of **20** questions of **1 mark** each, section B comprises of **6** questions of **2 marks** each, section C comprises **8** questions of **3 marks** each and section D comprises of **6** questions of **4 marks** each.
- There is no overall choice. However, an internal choice has been provided in two questions of 1 mark each, two questions of 2 marks each, three questions of 3 marks each and three questions of 4 marks each. You have to attempt only one of the alternatives in all such questions.
- Use of calculators not permitted.

**SECTION A**

**Q 1-Q 10 are multiple choice questions. Select the most appropriate answer from the given options.**

1. Degree of the polynomial  $\sqrt{3}$  is  
 (a) 0                      (b) Not defined              (c) 1                      (d)  $\frac{1}{2}$
2. The decimal expansion of the number  $\sqrt{2}$  is  
 (a) terminating              (b) 1.41421              (c) non-terminating recurring  
 (d) non-terminating non-recurring
3. In which quadrant will  $(-3, 4)$  lie.  
 (a) I quadrant              (b) II quadrant              (c) III quadrant              (d) IV quadrant
4. Which of the following equation has graph parallel to y-axis?  
 (a)  $y=4$                       (b)  $x=y$                       (c)  $x=3$                       (d)  $x+y=0$
5. If the supplement of an angle is three times its complement, then angle is  
 (a)  $40^\circ$                       (b)  $35^\circ$                       (c)  $50^\circ$                       (d)  $45^\circ$
6. From a deck of 52 cards, the probability of drawing a face card is  
 (a)  $\frac{4}{13}$                       (b)  $\frac{3}{13}$                       (c)  $\frac{1}{13}$                       (d)  $\frac{1}{4}$
7. For finding the popular size of ready-made garments, the central tendency used is  
 (a) Mean                      (b) Median                      (c) Mode                      (d) None of the above.

8. If the perimeter of one face of a cube is 20 cm, then its surface area will be  
 (a)  $150 \text{ cm}^2$                       (b)  $120 \text{ cm}^2$                       (c)  $125 \text{ cm}^2$                       (d)  $400 \text{ cm}^2$
9. A bag contains 10 balls, out of which 4 balls are white and the others are non-white. The probability of getting a non-white ball is  
 (a)  $\frac{2}{5}$                                       (b)  $\frac{3}{5}$                                       (c)  $\frac{1}{2}$                                       (d)  $\frac{2}{3}$
10. Given that length of each side of an equilateral triangle is rational then its area is always a/an  
 (a) Irrational number    (b) rational number    (c) natural number    (d) positive integer

**(Q.11-Q.15) Fill in the blanks:**

11. The median of the numbers 9, 5, 7, 17, 13, 18, 13, 9, 5, 17, 13, 12, 17 is \_\_\_\_\_.
12. If a transversal intersects two parallel lines, then the sum of the interior angles on the same side of the transversal is \_\_\_\_\_.
13. The value of  $\sqrt[4]{81^{-2}}$  is \_\_\_\_\_.
14. Volume of a cylinder is three times the volume of a \_\_\_\_\_ on the same base and of the same height.

**OR**

- Total surface area of hemisphere of radius  $r$  is \_\_\_\_\_.
15. If  $(x,y)$  represents a point and product  $xy > 0$ , then the point may lie in \_\_\_\_\_ or \_\_\_\_\_ quadrant.

**(Q 16-Q 20) Answer the following**

16. Two identical dice are rolled simultaneously. What is the probability that they show different faces?
17. Find the probability of getting a consonant letter in the word "MATHEMATICS".

**OR**

- Two coins are tossed simultaneously. Compute the probability of getting atmost one head.
18. Rationalize the denominator of  $\frac{1}{3+\sqrt{8}}$ .
19. If the perimeter of an equilateral triangle is 90 m, then find its area.
20. The radius of a circle is 10 cm and length of the chord is 12cm. Find the distance of the chord from the centre.

## SECTION B

Question numbers 21 to 26 carry 2 marks each.

21. Factorise  $64x^3+1$

22. Express the number  $0.4\bar{7}$  in the form of  $\frac{p}{q}$ , where  $q \neq 0$ .

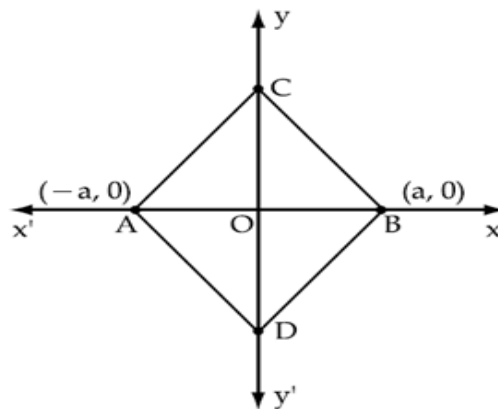
23. The sides of a triangular field are 51 m, 37 m and 20 m. Find the number of flower beds that can be prepared, if each bed is to occupy  $6 \text{ m}^2$  of space.

**OR**

If the side of a rhombus is 10 cm and one diagonal is 16 cm, then find the area of the rhombus.

24. If a line segment joining the mid points of two chords of a circle passes through the centre of the circle, prove that the two chords are parallel.

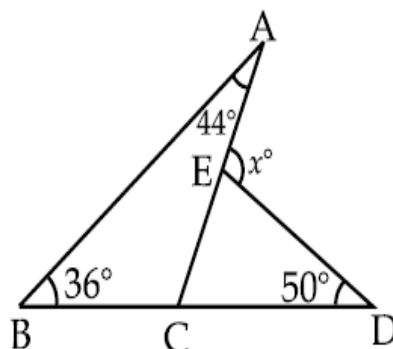
25. In the figure, if ABC and ABD are equilateral triangle then find the co-ordinate of C and D.



26. In triangle ABC,  $\angle B=45^\circ$ ,  $\angle C=55^\circ$  and bisector of  $\angle A$  meets BC at a point D. Find  $\angle ADB$ .

**OR**

Find the degree measure of x from the given figure



**SECTION C**

**Question numbers 27 to 34 carry 3 marks each.**

27. Find the values of 'a' and 'b' so that polynomial  $x^3 + 10x^2 + ax + b$  has  $(x - 1)$  and  $(x + 2)$  as factors.

28. Construct a triangle ABC in which  $BC = 8\text{cm}$ ,  $\angle B = 45^\circ$  and  $AB - AC = 3.5\text{cm}$ .

29. If  $x = 3 + 2\sqrt{2}$ , find the value of  $\sqrt{x} - \frac{1}{\sqrt{x}}$ .

**OR**

Locate  $\sqrt{4.5}$  on the number line.

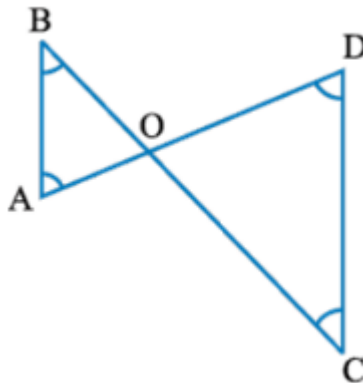
30. Simplify:  $(a + b + c)^2 + (a - b + c)^2 + (a + b - c)^2$ .

31. The volume of metallic cylindrical pipe of length  $14\text{cm}$  is  $748\text{ cm}^3$ . If its external radius is  $9\text{cm}$  then find the thickness of the pipe.

**OR**

The curved surface area of a right circular cone is  $12320\text{cm}^2$ . If the radius of its base is  $56\text{cm}$ , find its height.

32. If  $\angle B < \angle A$  and  $\angle C < \angle D$ . Show that  $AD < BC$



**OR**

AB and CD are the smallest and longest side of quadrilateral ABCD. Prove that  $\angle A > \angle C$ .

33. Solve  $\frac{3}{x-1} + \frac{1}{x+1} = \frac{4}{x}$

34. XY is a line parallel to side BC of a triangle ABC. If BE is parallel to AC and CF is parallel to AB meet XY at E and F respectively, show that ar(ABE)=ar(ACF).

**SECTION D**

**Question numbers 35 to 40 carry 4 marks each.**

35. Draw a histogram for the following distribution:

Marks Obtained	No. of students
0-10	4
10-20	8
20-40	20
40-45	10
45-60	12
60-70	6
70-85	15

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. 30 circular plates, each of radius 14cm and thickness 3 cm are placed one above the another to form a cylindrical solid. Find

- (i) the total surface area.
- (ii) volume of the cylinder so formed.

**OR**

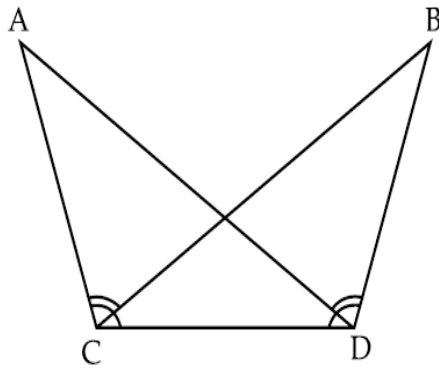
The volumes of the two spheres are in the ratio 64:27. Find the ratio of their surface area.

38. Draw the graph of the equations  $x = 3$  and  $x = 2y$  in the same graph. Find area of the triangle formed by these two lines and the X - axis.

**OR**

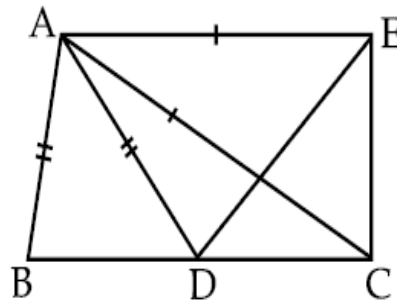
A man leaves half his property to his wife, one third of the remaining to his son and the rest to his daughter. If daughter's share is rupees 15000, how much did the man leave? How much did his wife and son get?

39. In the figure,  $\angle BCD = \angle ADC$  and  $\angle ACB = \angle BDA$ . Prove that  $AD = BC$  and  $\angle A = \angle B$ .

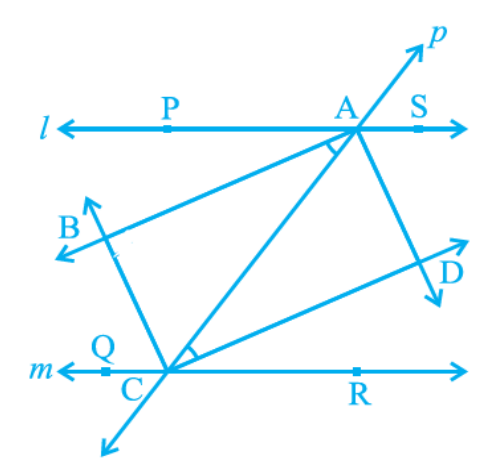


OR

$AC = AE$ ,  $AB = AD$  and  $\angle BAD = \angle EAC$ . Show that  $BC = DE$ .



40. Two parallel lines  $l$  and  $m$  are intersected by a transversal  $p$ . Show that the quadrilateral formed by the bisectors of interior angles is a rectangle.



\*\*\*\*\* THE END\*\*\*\*\*