CBSE Sample Paper Class 9 Maths SA2 Set 4

SUMMATIVE ASSESSMENT II
MATHEMATICS

Class: IX   Time: 3- 3 ½ hours

M.Marks:80

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General Instructions:
1. All questions are compulsory
2. The question paper consists of 34 questions divided into 4 sections A ,B ,C and D. Section A comprises of 10 questions of 1 mark each .Section B comprises of 8 questions of 2 marks each. Section C comprises of 10 questions of 3 marks each. And Section D comprises of 6 questions of 4 marks each.
3. Question numbers 1 to 10 in Section A are multiple choice questions where you are to select one correct option out of the given four.
4. There is no overall choice. However, an internal choice has been provided in 1 question of two marks, 3 questions of three marks each and 2 questions of four marks each. You have to attempt only one of the alternatives in all such questions. .
5. Write the serial number of the question number before attempting it.
6. Use of calculators is not permitted.
7. An additional 15 minutes time has been allotted to read this question paper only.

SECTION A

1. Given figure A and figure B such that ar (A) = 20 sq. units and ar (B) = 20 sq. units.
A. Figure A and B are congruent   B. Figure A and B are not congruent
C. Figure A and B may or may not be congruent   D. Figure A and B are similar

2. If the surface area of a sphere is 616 cm^2 , then its radius is
A.14cm   B. 3.5 cm   C. 7 cm   D.28cm

3. The surface area of a cuboid is 1372 sq.cm.If its dimensions are in the ratio of 4 :2: 1,
then its length is
A. 7 cm   B. 14 cm   C. 21 cm   D. 28cm

4. In a frequency distribution, the class-width is 4 and the lower limit of first class is 10. If there are six classes, the upper limit of last class is
A. 32   B. 26   C. 30   D. 34

5. A die is thrown 200 times and the following outcomes are noted, with their frequencies:

Outcome	1	2	3	4	5	6
Frequency	56	22	30	42	32	18

What is the empirical probability of getting a number less than 4?
A. 0.50 B. 0.54 C. 0.46 D. 0.52

6. The equation of x-axis is
A. a = 0   B. y = 0   C. x = 0   D. y = k

7. Given a rectangle ABCD and P, Q, R, S mid points of AB, BC, CD and DA respectively. Length of diagonal of rectangle is 8 cm the quadrilateral PQRS is
A. parallelogram with adjacent sides 4 cm   B. rectangle with adjacent sides 4 cm
C. rhombus with side 4 cm   D. square with side 4 cm

8. In the given figure, find x, if ABCD is a rhombus and AE = 4 cm, ar(ABCD) = 20 cm^2.
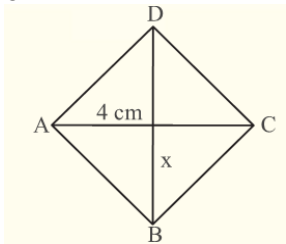
A.   4 cm   B. 5 cm   C. 10 cm   D. 2.5 cm

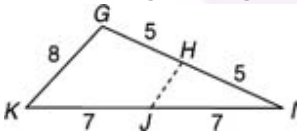9. A circle divides the plane on which it lies into
A. three parts   B.two parts   C.one part   D. none of these

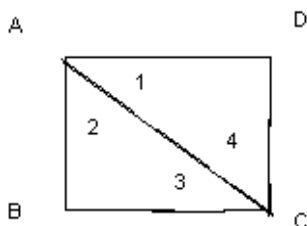10.   A cone of height 8m has a curved surface area 188.4 sq. metres. Its volume is
A. 298 m^3 B. 300 m^3 C. 301.44 m^3 D. 305.23m^3

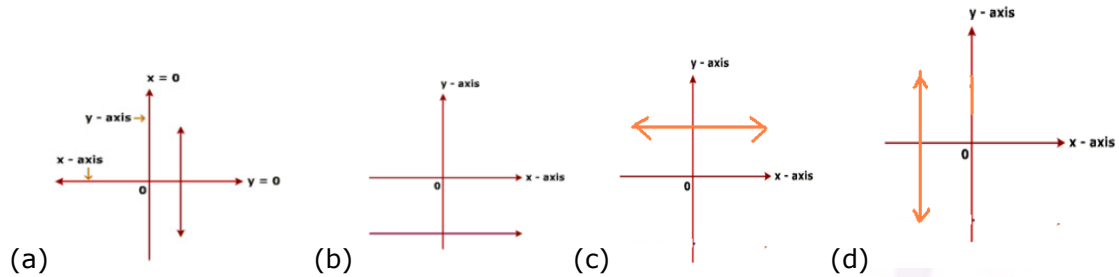## SECTION B

11. In the given figure, find *HJ.*

OR

In a quadrilateral ABCD $\angle ADC = \angle ABC$, $\angle 1 \cong \angle 3$ and $\angle 2 \cong \angle 4$, prove that the quadrilateral ABCD is a parallelogram.

12. Which of the following graphs may correspond to the equation y = k where k is a negative rational number.

(a)   (b)   (c)   (d)

13. Solve -3(-x + 5) + 20 = -10(x - 3) + 4

14. Vivek bought a cell phone for Rs5804. He made a down payment of Rs32 and will pay the rest in 6 equal payments. Form an equation to represent this information.

15. In equilateral triangle KLM, P Q and R are the mid-points of KL, LM and MK. Prove that ΔPQR is an equilateral triangle.
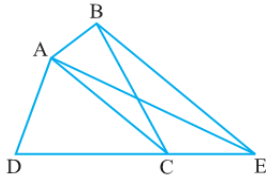
16. In the given Figure, ABCD is a quadrilateral and BE || AC and also BE meets DC produced at E. Show that area of Δ ADE is equal to the area of the quadrilateral ABCD.

17. Given an arc of a circle, give a method to complete the circle

18. Find the total surface area of the box open at the top.
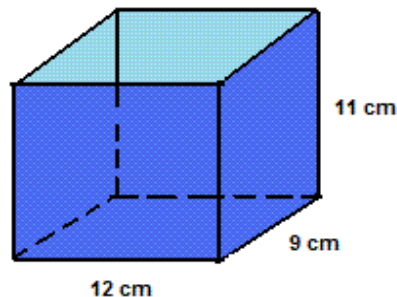
Section C

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19. 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.

Or

If the lateral surface area of a cylinder is 94.2 cm² and its height is 5 cm, then find
(i) radius of its base (ii) its volume. (Use π = 3.14)

20. The distance, in km, from school to homes of thirty children was found out. The results were found as follows: 16,2,3,5,12,5,8,4,8,10, 3, 4, 12, 2, 8, 15, 1, 17, 6,3,2,8,5,9,6,8,7,14,12,11.
(i) Make a grouped frequency distribution table for this data, taking class width 5 and one of the class intervals as 5 - 10.
(ii) How many children lived more than 15 km from school?

21. The table shows the number of seats won by 6 political parties in an election. Make a Bar graph for the same and find the total number of seats

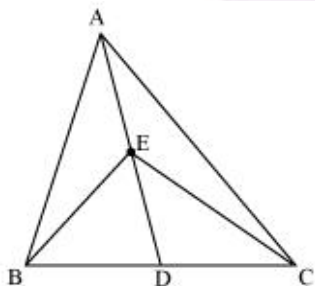| Party	number of seats
A	37
B	10
C	29
D	47
E	55
F	75

22. If a dice is rolled once, what is the probability that it will show (i) a multiple of 1? (ii) a multiple of 7 ?

OR

In 1000 trials, outcomes and their frequencies were recorded. Show that the table covers all the possible outcomes of a trial.

Outcome	1	2	3	4	5	6
Frequency	179	150	157	149	175	190

23.

In the given figure, E is a point on median AD of a ΔABC. Show that ar (ABE) = ar (ACE)

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

25. Construct a right triangle whose base is 4 cm and sum of its hypotenuse and other side is 8 cm.

26. ABCD is a quadrilateral in which P, Q, R and S are mid-points of the sides AB, BC, CD and DA, as shown in the given figure. AC is a diagonal. Prove that:
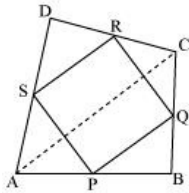
(i) SR || AC and SR = ½ AC
(ii) PQ = SR
(iii) PQRS is a parallelogram.

OR

If a triangle and a parallelogram are on the same base and between the same parallels, then prove that the area of the triangle is equal to half the area of the parallelogram

27.   In an examination, one mark is awarded for every correct answer, while 1/4 mark is deducted for every wrong answer. A student answered 120 questions and got 20 marks. How many questions did he answer correctly?

28. A village, having a population of 4000, requires 150 litres of water per head per day. It has a tank measuring 20 m × 15 m × 6 m. For how many days will the water of this tank last?

SECTION D

29. Show that the diagonals of a parallelogram divide it into four triangles of equal area.

 30. Prove that the quadrilateral formed (if possible) by the internal angle bisectors of any quadrilateral is cyclic.

 31. The paint in a certain container is sufficient to paint an area equal to 9.375 m^2. How many bricks of dimensions 22.5 cm ×10cm ×7.5cm can be painted out of this container?

32.   Parallelogram ABCD and rectangle ABEF are on the same base AB and have equal areas. Show that the perimeter of the parallelogram is greater than that of the rectangle.

33. A survey was taken on 30 classes at a school to find the total number of left-handed students in each class. The table below shows the results:

No. of left-handed students	0	1	2	3	4	5
Frequency (no. of classes)	1	2	5	12	8	2

A class was selected at random.
a) Find the probability that the class has 2 left-handed students.
b) What is the probability that the class has at least 3 left-handed students?
c) Given that the total number of students in the 30 classes is 960, find the probability that a student randomly chosen from these 30 classes is left-handed.

34. Solve $|2x - 4| - 2 = 6$.

OR

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) 2units (ii) 0 unit.