

CBSE Sample Paper Class 9 Maths SA2 Set 2

SUMMATIVE ASSESSMENT II SAMPLE PAPER MATHEMATICS

Class: IX

Time: 3- 3 ½ hours

M.Marks: 80

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 numbered from 1 to 10 in Section A are multiple choice questions where you have 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 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.
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SECTION - A

1. The range of the data 14, 27, 29, 61, 45, 15, 9, 18 is
A. 61 B. 52 C. 47 D. 53
2. Two coins are tossed 200 times and the following out comes are recorded

TTT	TTT/TTT	TT
56	110	34

What is the empirical probability of occurrence of at least one Head in the above case

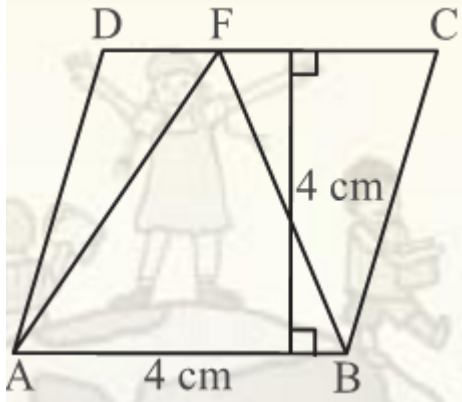
- A. 0.33 B. 0.34 C. 0.66 D. 0.83
3. A three digit number is selected at random. What is the probability that its unit digit is 2
A. 0.16 B. 0.128 C. 0.064 D. 0.20

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4. If three angles of a quadrilateral are 110° , 82° , 68° , then its fourth angle is

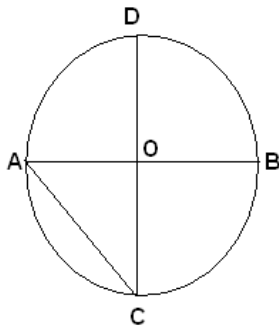
- A. 100° B. 110° C. 68° D. 260°

5. In the figure, ABCD is a parallelogram, then area of $\triangle AFB$ is



- A. 16 cm^2 B. 8 cm^2 C. 4 cm^2 D. 2 cm^2

6. In a circle with centre O, AB and CD are two diameters perpendicular to each other. The length of chord AC is:



- A. 2 AB B. $\sqrt{2} \text{ AB}$ C. $\frac{1}{2} \text{ AB}$ D. $\frac{\text{AB}}{\sqrt{2}}$

7. The chord, which passes through the centre of the circle, is called a
A. Radius of the circle. B. Diameter of the circle. C. Semicircle D. None of these

8. Given four points A, B, C, D such that three points A, B, C are collinear. By joining these points in order, we get
A. a straight line B. a triangle C. a quadrilateral D. a Parallelogram

9. The area of metal sheet required to make a closed hollow cone of slant height 10 m and base radius 7 m is

- A. 220 m^2 B. 352 m^2 C. 704 m^2 D. 374 m^2

10. The radius of a spherical balloon increases from 7 cm to 14 cm when air is pumped into it. The ratio of the surface area of original balloon to inflated one is

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- A. 1 : 2 B. 1 : 3 C. 1 : 4 D. 4 : 3

SECTION – B

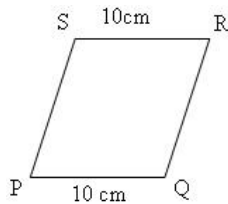
11. P and Q are any two points lying on the sides DC and AD respectively of a parallelogram ABCD. Show that area (ΔAPB) = area (ΔBQC).

12. D and E are points on sides AB and AC respectively of ΔABC such that area (ΔDBC) = area (ΔEBC). Prove that $DE \parallel BC$.

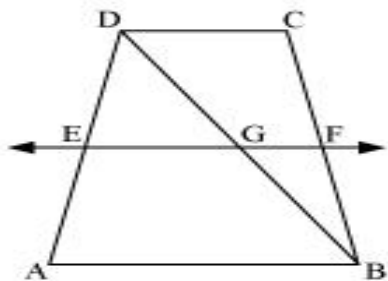
13. ABCD is a rectangle in which diagonal AC bisects $\angle A$ as well as $\angle C$. Show that ABCD is a square.

OR

The perimeter of a parallelogram PQRS is 32 cm and $PQ = 10$ cm. Find the measures of other sides.

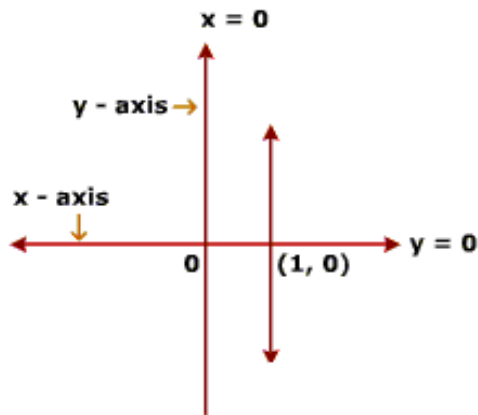


14. In the figure below, ABCD is a trapezium in which $AB \parallel DC$, BD is a diagonal and E is the mid - point of AD. A line is drawn through E parallel to AB intersecting BC at F. Show that F is the mid-point of BC.



15. If the point $(-\frac{5}{2}, \sqrt{2})$ lies on the graph of the equation $\frac{2}{5}x - 7 = ay$. Find 'a'.

16. Write the equation of the line shown in the figure.



17. Write a linear equation which passes through $x = 2$ and $y = 3$. How many such lines are possible?

18. Construct an angle of 120° . Write the steps of construction.

SECTION - C

19. The following are the weights in kg. of 50 college students. Construct a frequency table, such that the width of each interval is 4 and the upper limit of the last class is 60.

42 42 46 54 41 37 54 44 38
45

47 50 58 49 51 42 46 37 42
39

54 39 51 58 47 51 43 48 49
48

49 41 41 40 58 49 49 59 57
52

56 38 45 52 46 40 51 41 51
41

20. The table below shows students distribution per grade in a school.

Grade	frequency
1	50

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2	30
3	40
4	42
5	38
6	50

If a student is selected at random from this school, what is the probability that this student (a) is in grade 3 (b) is not in grade 2, 3, 4 or grade 5?

21. Find the quadrant in which the lines $x = 3$ and $y = -4$ intersect graphically.

OR

Solve the given equation $mx - 8 = 6 - 7(x + 3)$. Find the value of m for which the equation does not have any solution.

22 Laxmi purchases some bananas and some oranges. Each banana costs Rs.2 while each orange costs Rs.3. If the total amount paid by Laxmi was Rs.30 and the number of oranges purchased by her was 6, then how many bananas did she purchase?

23. Show that a quadrilateral whose diagonals bisect each other at right angles is a rhombus.

OR

Show that the diagonals of a square are equal and bisect each other at right angles

24. In the given figure, P is a point in the interior of a parallelogram ABCD. Show that $\text{ar}(\triangle APB) + \text{ar}(\triangle PCD) = \frac{1}{2} \text{ar}(\text{parallelogram ABCD})$

25 How many balls, each of radius 0.5cm, can be made from a solid sphere of metal of radius 10cm by melting the sphere.

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26. The circumference of the base of a cylindrical vessel is 132 cm and its height is 25 cm. If $1000 \text{ cu.cm} = 1 \text{ liter}$. How many litres of water can the vessel hold. (Use $\pi = \frac{22}{7}$)

27. Find the total surface area and the height of a cone, if its slant height is 21 m and the diameter of its base is 24 m. (Use $\pi = \frac{22}{7}$)

OR

Find the total surface area and Volume of a cone, if its height is 5 m and the diameter of its base is 24 m. (Use $\pi = \frac{22}{7}$)

28.



Given above is a frequency polygon drawn for data collected from daily wageworkers in a factory about their daily wages. Make a frequency distribution table for the data the frequency polygon represents.

SECTION-D

29. A plastic box 1.5 m long, 1.25 m wide and 65 cm deep, is to be made. It is to be open at the top. Ignoring the thickness of the plastic sheet, determine the cost of sheet for it, if a sheet measuring 1 m^2 costs Rs 20.

30. 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.

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31. Twenty four people had a blood test and the results are shown below.

A , B , B , AB , AB , B , O , O , AB , O , B , A

AB , A , O , O , AB , B , O , A , AB , O , B , A

- a) Construct a frequency distribution for the data.
- b) If a person is selected randomly from the group of twenty four people, what is the probability that his/her blood type is not O?

OR

The table below gives the number of times the digit 0,1,2,3,4,5,6,7,8,9 appear in a directory of numbers.

Digit	Frequency
0	2
1	5
2	5
3	8
4	4
5	5
6	4
7	4
8	5
9	8
Total	50

- (i) Construct a bar graph for this entire table taking frequency on the horizontal axis.
- (ii) Find the probability of the digit 5 appearing in the number.

32. Three years back, a father was 24 years older than his son. At present the father is 5 times as old as the son. How old will the son be three years from now?

OR

Solve the equation: $(x + 1)^3 - (x - 1)^3 = 6(x^2 + x + 1)$ and plot the solution in two variables.

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

34. The side AB of a parallelogram ABCD is produced to any point P. A line through A and parallel to CP meets CB produced at Q and then parallelogram PBQR is completed (as shown in the following figure). Show that $\text{ar}(\text{parallelogram } ABCD) = \text{ar}(\text{parallelogram } PBQR)$.

