KENDRIYA VIDYALAYA GACHIBOWLI, HYDERABAD – 32
SAMPLE PAPER 01 FOR SA – II (2016-17)

SUBJECT: MATHEMATICS

BLUE PRINT : SA-II CLASS IX

Unit/Topic	MCQ (1 mark)	Short answer (2 marks)	Short answer (3 marks)	Long answer (4 marks)	Total
Algebra Linear Equations in two variables	2(2)	--	6(2)	8(2)	**16(6)**
Geometry Quadrilaterals, Area, Circles & Construction	--	4(2)	6(2)	28(7)	**38(11)**
Mensuration Surface Areas and Volumes	1(1)	4(2)	9(3)	4(1)	**18(7)**
Statistics	--	--	6(2)	4(1)	**10(3)**
Probability	1(1)	4(2)	3(1)	--	**8(4)**
Total	**4(4)**	**12(6)**	**30(10)**	**44(11)**	**90(31)**

The test of OTBA for SA-II will be from Unit-II Quadrilaterals

MARKING SCHEME FOR SA – II

SECTION	MARKS	NO. OF QUESTIONS	TOTAL
VSA	1	4	04
SA – I	2	6	12
SA – II	3	8	24
LA	4	10	40
OTBA	3	2	6
	4	1	4
GRAND TOTAL			**90**

| SUBJECT: MATHEMATICS	MAX. MARKS : 90
CLASS : IX	DURATION : 3 HRS

General Instructions:
1. All questions are compulsory.
2. Question paper is divided into four sections: Section A consists 4 questions each carry 1 marks, Sections B consists 6 questions each carry 2 marks, Sections C consists 8 questions each carry 3 marks, Sections D consists 10 questions each carry 4 marks and Sections E consists 2 questions of 3 marks 1 question of 4 marks from OTBA Text Theme
3. There is no overall choice.
4. Use of Calculator is prohibited.

SECTION – A

1. Base radius of two cylinder are in the ratio 2 : 3 and their heights are in the ratio 5 : 3. Find the ratio of their volumes.

2. Find the value of k, if $x = 2$, $y = 1$ is a solution of the equation $2x + 3y = k$.

3. If the point (3, 4) lies on the graph of the equation $3y = ax + 7$, find the value of a.

4. A bag has 4 red balls and 2 yellow balls. A ball is drawn from the bag without looking into the bag. What is probability of getting a yellow ball?
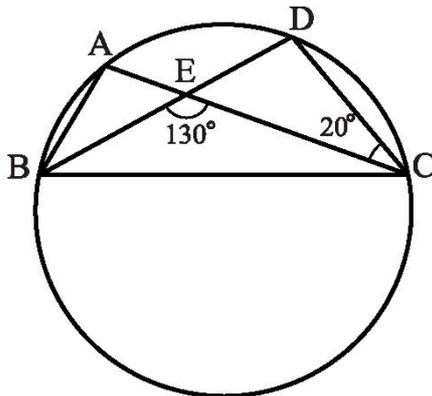
SECTION – B

5. In the below fig. O is any point on the diagonal BD of the parallelogram ABCD. Prove that ar(ΔOAB) = ar(ΔOBC).
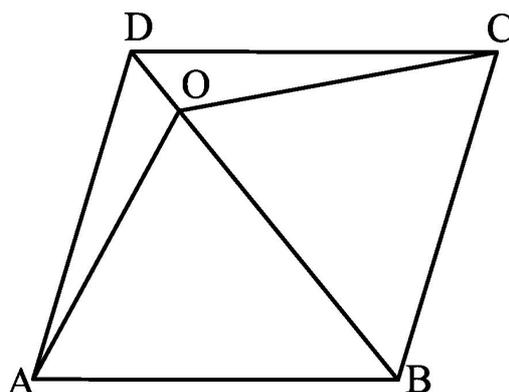
6. The record of a weather station shows that out of the past 250 consecutive days, its weather forecasts were correct 175 times. (i) What is the probability that on a given day it was correct? (ii) What is the probability that it was not correct on a given day?

7. Cards are marked with numbers 4, 5, 6, …….50 are placed in the box and mixed thoroughly. One card is drawn at random from the box. What is the probability of getting (i) an even prime number (ii) a number divisible by 5?

8. Find the radius of a sphere whose surface area is 154 cm^2 .

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9. In the below figure, A, B, C and D are four points on a circle. AC and BD intersect at a point E such that ∠BEC = 130° and ∠ECD = 20°. Find ∠BAC.

10. 30 circular plates, each of radius 14 cm and thickness 3cm are placed one above the another to form a cylindrical solid. Find the total surface area

SECTION – C

11. A box contains 5 red marbles, 8 white marbles and 4 green marbles. One marble is taken out of the box at random. What is the probability that the marble taken out will be (i) red ? (ii) white ? (iii) not green?

12. A joker's cap is in the form of a right circular cone of base radius 7 cm and height 24 cm. Find the area of the sheet required to make 10 such caps.

13. Draw the graph of $x + y = 7$.

14. Find six different solutions of the equation $x + 2y = 6$.

15. The value of π upto 50 decimal places is given below:

3.14159265358979323846264338327950288419716939937510

(i) Make a frequency distribution of the digits from 0 to 9 after the decimal point. (ii) What are the most and the least frequently occurring digits?

16. For the following data, draw a histogram and a frequency polygon

x	0 – 20	20 – 30	30 – 50	50 – 60	60 – 80	80 – 100
f	12	15	20	18	10	14

17. A river, 3 m deep and 40m wide, is flowing at the rate of 2km/hr. How much water will fall into the sea in a minute?

18. A conical tent is 10 m high and the radius of its base is 24 m. Find (i) slant height of the tent. (ii) cost of the canvas required to make the tent, if the cost of 1 m^2 canvas is Rs 70.
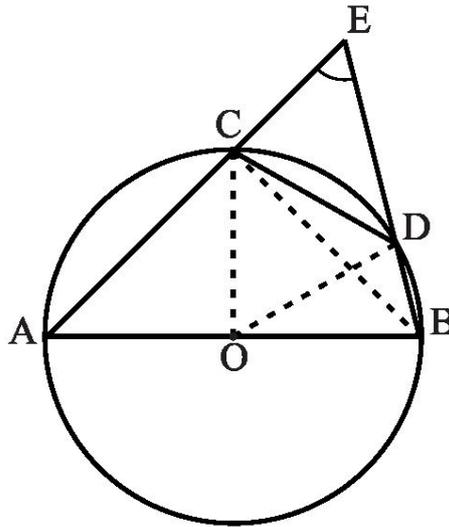
SECTION – D

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

20. Find the mean of the following data:

Income	50	150	250	350	450	550	650	750
No. of persons	4	8	9	10	7	5	4	3

21. In the below figure, AB is a diameter of the circle, CD is a chord equal to the radius of the circle. AC and BD when extended intersect at a point E. Prove that $\angle AEB = 60°$.
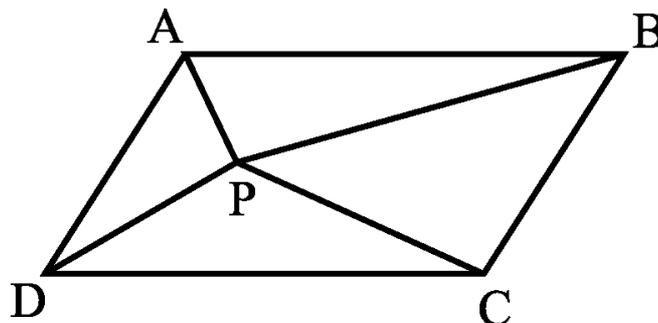

22. Solve the equation $2x + 1 = x - 3$, and represent the solution(s) on (i) the number line, (ii) the Cartesian plane.

23. In the below figure, ABCDE is any pentagon. BP drawn parallel to AC meets DC produced at P and EQ drawn parallel to AD meets CD produced at Q. Prove that ar (ABCDE) = ar (APQ)
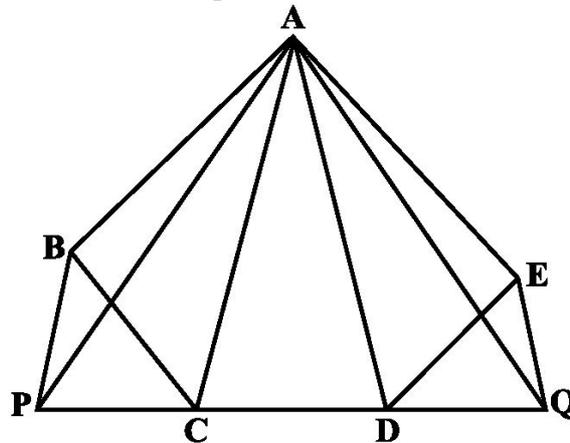
24. In fig. P is a point in the interior of a parallelogram ABCD. Show that
ar (APD) + ar (PBC) = ar (APB) + ar (PCD)

25. Yamini and Fatima, two students of Class IX of a school, together contributed Rs 100 towards the Prime Minister's Relief Fund to help the earthquake victims. Write a linear equation which satisfies this data. (You may take their contributions as Rs x and Rs y.) Draw the graph of the same. What values depicted from these?

26. 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.*"

27. Prove that "*The sum of either pair of opposite angles of a cyclic quadrilateral is* 180°."

28. A school provides milk to the students daily in a cylindrical glasses of diameter 7 cm. If the glass is filled with milk upto an height of 12 cm, find how many litres of milk is needed to serve 1600 students. What are the benefits of taking milk daily?

SECTION – E (OTBA)
THEME 1: SOLVING MYSTERY OF MESSED UP FIELDS

29. Read the statement of Oonkar and write the relation between the lines joining the mid-point of two sides with the third side of the triangle. State the theorem to justify your answer. Why are the areas of the two fields is in the ratio of 1:3 exactly.   **[3marks]**

Oonkar	My farm was a big three sided field. One side was common with Dorjee's and Jeevan's field and the other was common with Dhoondoop and Uttapa's field. I used to divide the field along the rope joining the mid points of these sides to obtain two parts whose areas were in the ratio 1:3

30. Listening to Laxminarayan's Statement, Roshni concluded that his farm might be a square in shape. Do you agree with her opinion? Justify.
Give other properties of square. State any three properties of a square.   **[3 marks]**

Laxminarayan	We are five brothers working on the same field and have a big field with equal sides. I used to divide the field in five parts by joining the mid points of the adjacent sides of the field. The lengths of ropes required to join the midpoints of the adjacent sides were also equal.

31. Listening to Dhoondoop's Statement, Roshni concluded that his farm might be a Rhombus or a kite in shape. Do you agree with her opinion? Justify.
Give other properties of a Rhombus. What is the shape of quadrilateral formed by joining the mid- points of the adjacent sides of a Rhombus.   **[4marks]**

Dhondoop	One side of my farm was along the boundary but the lengths of the ropes joining opposite corners were not equal. But, the ropes at the point of intersection made exact "L" shape.