KENDRIYA VIDYALAYA SANGATHAN
REGIONAL OFFICEVARANASI
SUMMATIVE ASSESSMENT-2 (2016-17)

CLASS –IX **MAX MARKS: - 90**
SUB: -MATHS (041) **MAX.TIME:-3 Hours**

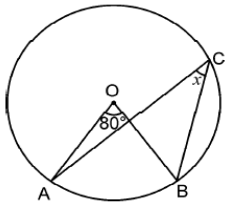
General Instructions:-

1. All questions are compulsory.
2. The question paper consists of 31 questions divided into five sections A, B, C, D and E.
3. (i) Section A comprises of 4 questions of 1 marks each.
(ii)Section B comprises of 6 question of 2 marks each.
(iii) Section C comprises of 8 questions of 3 marks each.
(iv)Section D comprises of 10questions of 4 marks each.
(v) Section E comprises of 3 questions one carrying 4 marks and two carrying 3 marks each (OTBA)
4. Use of calculator is not permitted.

SECTION – A

1. If a triangle and a parallelogram are on the same base and between the sameparallels,thenwhat is the ratioof the area of the triangle to the area of the parallelogram?

2. In the figure, O is the centre of the circle and ∠AOB = 80°. The value of x is:



3. A coin is tossed 100 times and head appears 54 times. Then, find the probability of getting a tail.

4. Find the mode of the following marks (out of 10) obtained by 20students:

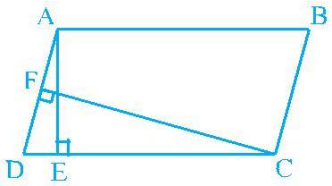
4, 6, 5, 9, 3, 2, 7, 7, 6, 5, 4, 9, 10, 10, 3, 4, 7, 6, 9, 9

SECTION – B

5. If the point (3, 5) lies on the graph of the equation 3y = kx − 6, find the value of k.

6. Prove that equalchords of a circle subtend equal angles at the centre.

7. ABCD is a parallelogram in which AE ⊥ DC and CF ⊥ AD. If AB = 16 cm, AE = 8 cm and CF = 10 cm, find AD.



8. A bag contains 15 cards bearing numbers 1, 2, 3, ---------, 14, 15. A card is drawn from the bag. Find the probability that it bears: (i) a prime number (ii) a number less than or equal to 15.

9. Find the mean salary of 20 workers of a factory from the following table:

Salary (in Rs)	Number of workers
10000	5
9000	8
8000	2
7000	2
6000	3
total	20

10. 1500 families with 2 children were selected randomly, and the following data were recorded:

Number of girls in a family	2	1	0
Number of families	475	814	211

Find the probability of a family, chosen at random, having: (i) 2 girls (ii) no girl

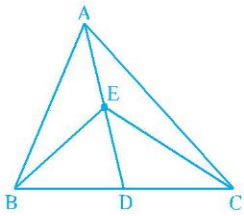
SECTION – C

11. Give the geometric representations of2x + 9 = 0 as an equation(i) in one variable (ii) in two variables.

12. The linear equation that converts Fahrenheit (F) to Celsius (C) is given by the relation

$$C = \frac{5F-160}{9}$$

(i) If the temperature is 35°C, what is the temperature in Fahrenheit?
(ii) What is the numerical value of the temperature which is same in both the scales?



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

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

15. The slant height and base diameter of a conical tomb are 25 m and 14 m respectively. Find the cost of whitewashing its curved surfaceat the rate of Rs 210 per 100 m^2.

16. Construct a triangle PQR in which QR = 7 cm, ∠Q = 75° and PQ + PR = 13 cm.

17. The heights of 50 students, measured to the nearest cm, have been found to be as follows:

161	150	154	165	168	161	154	162	150	151
162	164	171	165	158	154	156	172	160	170
153	159	161	170	162	165	166	168	165	164
154	152	153	156	158	162	160	161	173	166
161	159	162	167	168	159	158	153	154	159

(i)Represent the data given above by a grouped frequency distribution table, taking the class intervals as 160 - 165, 165 - 170, etc. (ii) What is the range height of the students?

18. Fifty seeds were selected at random from each of 5 bags of seeds, andwere kept under Standardized conditionsfavorable to germination. After 20 days, the number of seeds which had germinated in each collection were counted and recorded as follows:

Bag	1	2	3	4	5
Number of seeds germinated	40	48	42	39	41

What is the probability of germination of:(i) more than 40 seeds in a bag?

(ii) 49 seeds in a bag? (iii) more than 35 seeds in a bag?

SECTION – D

19. The taxi fare in a city is as follows : For the first kilometre, the fare is Rs 10 and for the subsequent distanceit is Rs 8 per km. Taking the distance covered as x km and total fare as Rs y, write a linear equation for this information, and draw its graph.

20. Draw the graph of linear equation 4x + 3y = 12. At what point the graph of the equation cut the x-axisand y-axis. If (3m, m – 1) is a solution of given equation, find m.

21. Prove that the angle subtended by an arc at the centre is double the angle subtended by it at any pointonthe remaining part of the circle.

22. Construct a ΔABC in which ∠B = 30°, ∠C = 90° and AB + BC + CA = 12 cm.

23. A village, having a population of 4000, requires 150 litres of water per head per day. Due to lack of sourcesof water, they collect the water into a tank measuring 20 m × 15 m × 6 m from a river using a long pipe. (i) For how many days will the water of this tank last?
(ii) Which message is conveyed by the people of village?

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

25. Volume of a right circular cone is 9856 cm^3. If diameter of the cone is 28 cm, find the curved surface area of the cone.

26. D, E and F are respectively the midpoints of the sides BC, CA and AB of a ΔABC. Show that
(i) BDEF is a parallelogram.
(ii) ar (DEF) = $\frac{1}{4}$ ar (ABC)

27. If two equal chords of a circle intersect within the circle, prove that the segments of the one chord are equal to corresponding segment of the other chord

28. In a city, the weekly observations made in a study on the cost of livingindex are given in the following table&Draw a frequency polygon for the given data.

Cost of living index	Number of weeks
140 - 150	5
150 - 160	10
160 - 170	20
170 - 180	9
180 - 190	6
190 - 200	2
Total	52

SECTION – E (OTBA)

[Theme: Solving Mystery of messed up fields]

29. Listening to Jeevan's Statement, Roshni concluded that his farm might be any Quadrilateral in shape.Doyou agree with her opinion? Justify.
Prove that the quadrilateral formed by joining the mid-points of the sides of a quadrilateral, in order, is a parallelogram. [4 marks]

30. Listening to Uttapa's Statement, Roshni concluded that his farm might be a Parallelogram in shape. Do you agree with her opinion? Justify. State any four properties of a Parallelogram. [3 marks]

31. Listening to Yousuf 's Statement, Roshni concluded that his farm might be a square in shape. Do you agree with her opinion? Justify. State any two properties of a square.[3 marks]