DELHI PUBLIC SCHOOL:: SURAT

MATHEMATICS (SAMPLE PAPER)

SUMMATIVE ASSESSMENT-2

Roll No: **Class: IX**

Marks: 80   **Time: 3 Hours**

General Instructions

(i)   All questions are compulsory.

(ii)   The question paper consists of 34 questions divided into four 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.

(iii)   Question numbers 1to10 in section A are multiple choice questions where you are to select one correct option out of the given four.

(iv)   There is no overall choice. However, 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.

(v)   Use of calculator is not permitted.

Section-A

Question number 1 to 10 carry 1 mark each.

1.   The equation of x-axis is of the form:

     (A) $x = 0$ (B) $y = 0$ (C) $x + y = 0$ (D) $x = y$

2. The median of a triangle divides it into two:

(A) triangle of equal area (B) congruent triangles (C) right triangles
(D) isosceles triangles

3. How many linear equations in x and y can be satisfied by x=1 and y=2?

(A) Only one (B) Two (C) Three (D) Infinitely many

4. If a triangle and a parallelogram are on the same base and between same parallels, then the ratio of the area of the triangle the area of parallelogram is

(A) 1:3 (B) 1:2 (C) 3:1 (D) 1:4

5. Three angles of a quadrilaterals are $75°$, $90°$ and $80°$. The fourth angle is:

(A) $90°$ (B) $95°$ (C) $115°$ (D) $120°$

**6.** In the figure A, B, C are three points on circle, with centre O and ∠BOC= 40º. Find ∠BAC.
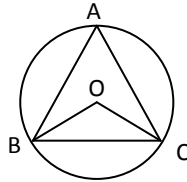
(A) $100°$ B) $25°$ (C) $90°$ (D) $20°$

7. The total surface area of a cube is $96cm^2$. The volume of the cube is:

(A) $8cm^3$ (B) $512cm^3$ (C) $64cm^3$ (D) $27cm^3$

8. If AB=12cm, BC=16cm and AB is perpendicular to BC, then the radius of the circle passing through the points A,B and C is :

(A) 6 cm (B) 8 cm (C) 10 cm (D) 12 cm

9. In a cylinder, if radius is halved and height is doubled, the volume will be

(A) Same (B) doubled (C) halved (D) four times

10. The probability of an impossible event is

(A) 0 (B) 1 (C) less than 0 (D) more than 1

Question number 11 to 18 carry 2 marks each.

11. If the point (5, k) lies on the line representing the linear equation $x + 2y = 3$, then what is the value of k?

12. In the given figure, PQRS is a parallelogram. The lengths of PT and SR are 28 cm and 36 cm respectively. Find the area of ΔPQR.
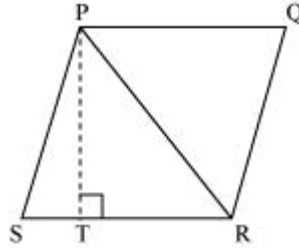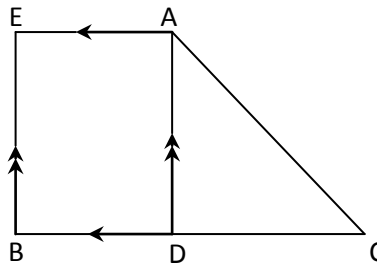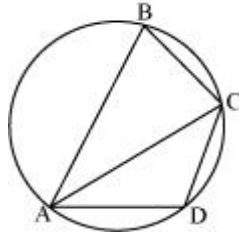

OR

In the given figure, PQRS is a square of side 15 cm. Also, PQBA is a parallelogram.Find
(a) Area of parallelogram PQBA   (b) Area of ΔABC
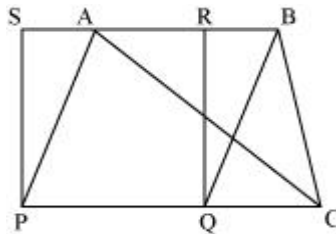
13. In the figure given below, AE ∥ DB, DA ∥ BE and D is the middle point of BC.
If ar.(ΔADC) = 12 cm^2 and ∠B=90° , find the area of quadrilateral AEBC.

14. In the given figure, a cyclic quadrilateral with BC = CD is shown. Show that AC bisects ∠BAD.

15. The ratio of diameter and height of a right circular cone is 3:2. If its total surface area is 3696 cm^2, then find its volume.

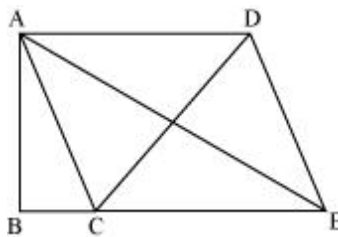**16.** From the given figure, find ∠ABC.
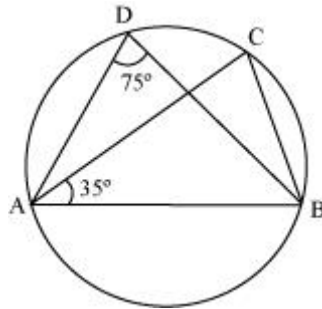
17. Find the mean of first 8 prime numbers.

18. A cone and a cylinder are of the same height. Their radii of the bases are in the ratio 2:1.Find the ratio of their volumes.
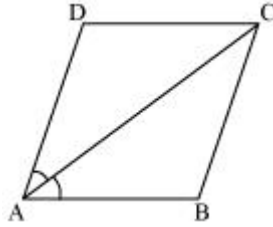
Section-C

Question number 19 to 28 carry 3 marks each.

19. In the given figure, ABCD is a quadrilateral and ACED is a parallelogram. Prove that:
ar (△ABE) = ar (quadrilateral ABCD)

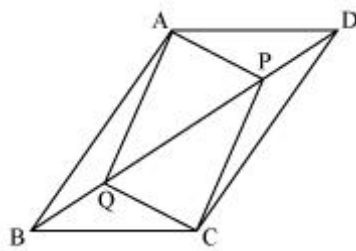**20.** Diagonal AC of a parallelogram ABCD bisects ∠A (see the given figure). Show that
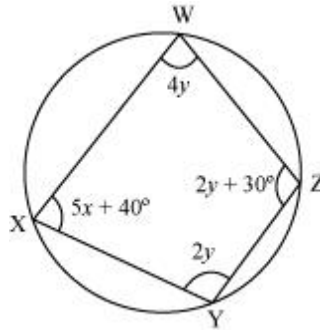(i) It bisects ∠C also,   (ii) ABCD is a rhombus.

OR

In parallelogram ABCD, two points P and Q are taken on diagonal BD such that DP = BQ (see the given figure). Show that:

(i) ΔAPD ≅ ΔCQB   (ii) AP = CQ   (iii) ΔAQB ≅ ΔCPD   (iv) AQ = CP

21.   In the given figure, a cyclic quadrilateral WXYZ is shown. Find the values of x and y.

22.   Find the points where the graph of the equation $3x + 5y = 15$ cuts the x-axis and the y-axis.

23.   The sides of a triangle are 39 cm, 42 cm and 45 cm. A parallelogram stands on the greatest side of the triangle and have the same area as that of the triangle. Find the height of the parallelogram.

OR

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Find the cost of growing grass in a triangular field of sides 48 cm, 60 cm and 60 cm at the rate of Rs 5per cm^2

24. Represent the linear equation $2x + 6y = 8$ graphically.

25. A right triangle with its sides 13 cm,12 cm and 5 cm is rotated about the side 12 cm.Find the volume and the curved surface of the solid so formed.

26. Two dice are thrown simultaneously once. Find the probability:

   (i) Of getting the same number on both dice.

   (ii) Of getting the different numbers on both dice.

27. In the mathematics test given to 15 students, the following marks (out of 100) are recorded: 41, 39, 48, 52, 46, 62, 54, 40, 96, 52, 98, 40, 42, 52, 60. Find the mean, median and mode of the above marks.

OR

Draw histogram of the weekly pocket expenses of 125 students of a school given below:

Weekly pocket expenses (in Rs.)	No. of Students
10 – 20	10
20 – 30	15
30 – 50	40
50 – 60	25
60 – 90	30
90 – 100	5

28. The marks out of 100 obtained by 8 students in a class are as follows: 74, 46, 57, 33, 10, 29, 91, and 92. If marks of a student are chosen at random, then find the probability that they are more than the mean marks.

Section-D

Question number 29 to 34 carry 4 marks each.

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29. Linear equation that converts Fahrenheit to Kelvin is given as:

$$K = \frac{5}{9}(F - 32) + 273$$

    a) If the temperature is 59F, what is the temperature in Kelvin?

    b) If temperature is 273 K, what is the temperature in Fahrenheit?

    c) Find the temperature which is numerically the same in both Fahrenheit and Kelvin.

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

OR

ABCD is a trapezium in which AB $\parallel$ CD and AD = BC. Show that

    a) $\angle$DAB $=\angle$ABC   b) $\angle$BCD $=\angle$ADC   c) $\triangle$ABC $\cong$ $\triangle$BAD   d) AC = BD

31. Construct a triangle PQR in which QR = 8cm, $\angle$Q = 45° and $PQ - PR = 3.5cm$.
(Write the steps of construction)

OR

Construct a triangle with base of length 5 cm, the sum of other two sides is 7 cm and one base angle is $60°$.(Write the steps of construction)

32 A military tent is in the form of a right circular cone 6m in height, the diameter of the base being 7m. 11 soldiers can sleep in it. Find the average number of cubic metre of air space per soldier.

33. Construct a triangle ABC, in which $\angle$B= 60°, $\angle$C= 45°, AB+BC+CA=11cm.
(Write the steps of construction)

34. The maximum temperatures in Celsius of 20 cities on a day are given below:

Max. Temperature	10 – 15	16 – 21	22 – 27	28 – 31	32 – 37
No. of cities	2	3	12	2	1

Draw a frequency polygon for the above data.

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