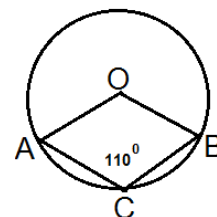


## SUMVIATIVE ASSESSMENT— II MATHEMATICS Class — IX 2016-17(code: D6XFCAM)

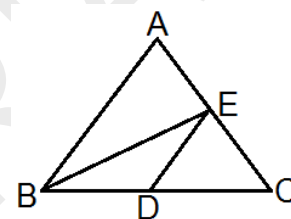
### SECTION - A

- Find the perpendicular distance of the point P(4,3) from the y-axis,
- In the figure, O is the centre of the circle passing through A, B and D. If  $\angle ADB = 110^\circ$ , find the measure of  $\angle AOB$ , corresponding to arc ADB
- What is the ratio of the volume of cylinder and a Hemisphere of equal radii and equal height?
- If the mean of the data  $2, x + 1, 9, x - 2$  is 4, find the value of x.



### SECTION - B (Question numbers 5 to 10 carry two marks each.)

- (3, - 2) is a solution of the equation  $(p - 1)x + 4y = 10$ , find the value of p.
- In the given figure, D and E are respectively the mid-points of the sides BC and CA of  $\triangle ABC$ . Find the area of  $\triangle BDE$ , if area of  $\triangle ABC$  is  $36\text{cm}^2$ .
- What is the volume of a right circular cylinder whose base area is  $606\text{ cm}^2$  and whose height is 2m?
- The heights (in cm) of 10 students of a class are given below:  
155, 160, 145, 149, 150, 147, 152, 154, 144, 148. Find the median of the data.



- A group of 80 students of Class X are selected and asked for their choice of subject to be taken in Class XI which is recorded as below:

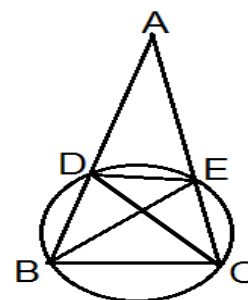
| Stream         | PCM | PCB | Commerce | Humanities | Total |
|----------------|-----|-----|----------|------------|-------|
| No of Students | 29  | 21  | 12       | 12         | 80    |

If a student chosen at random, find the probability that he/she is a student either commerce or humanities

- Write the equation  $4x - 7 = y$  in the standard form  $ax + by + c = 0$  and find the values of a, b and c. Hence, find the value of  $(a + b - c)$

### SECTION - C (Question numbers 11 to 18 carry three marks each.)

- In an isosceles triangle ABC with  $AB = AC$ . a circle passing through B and C intersects the sides AB and AC at D and E respectively as shown in figure. Prove that DE is parallel to side BC.
- Find the coordinates at which the linear equation  $3x + 2y = 6$  intersects the x and y axes.
- ABCD is a parallelogram. E, F, G, H are the midpoints of the side AB, BC, CD and DA respectively. Show that  $\text{ar}(EFGH) = \frac{1}{2} (\text{ABCD})$ .



- 60 circular Plates, each of radius 7 cm and thickness 0.5 cm, are placed one above another to form a solid right circular cylinder. Find the total surface area and volume of the cylinder?

- Find the mean of weekly pocket money

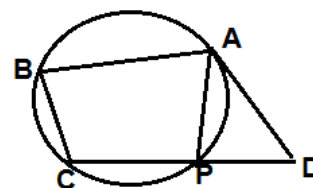
|                      |    |    |    |    |    |    |    |
|----------------------|----|----|----|----|----|----|----|
| Pocket money [in Rs] | 55 | 50 | 49 | 81 | 48 | 57 | 65 |
| Frequency:           | 8  | 3  | 10 | 7  | 3  | 7  | 2  |

- The following table shows the performance of the two sections of students in a maths test of 100 marks

| Marks              | 10 - 20 | 20 - 30 | 30- 40 | 40-50 | 50- 60 | 60-70 | 70 and above | Total |
|--------------------|---------|---------|--------|-------|--------|-------|--------------|-------|
| Number of students | 7       | 10      | 10     | 20    | 20     | 15    | 8            | 90    |

- Find the probability that a student's obtained: (i) less than 20 in the mathematics test (ii) marks 60 or above (iii) marks more than or equal to 40 but less than 60.

17. The circle passing through the vertices A, B and C of a parallelogram ABCD intersects CD at P as shown in the figure. Prove that  $\angle APD = \angle ADP$ .



18. A bag contains 5 red balls, 4 green balls, 7 black balls and 3 blue balls. If one ball is drawn at random from the bag, find the probability that the ball is: (i) not red (ii) green of ball (iii) neither red nor black.

SECTION - D (Question numbers 19 to 28 carry four marks each.)

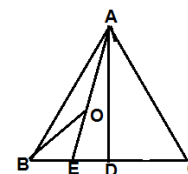
19. A conical heap is formed when a farmer pours food grains on the ground. The slant height of the heap is 35 cm. The circumference of the base is 132 cm. Find the area of tarpaulin needed to cover the grains. The farmer donates half of the food grains to an orphanage. How much grains the farmer donated? What is the value depicted by the farmer?

20. The taxi fare in a city is as follows: For the first kilometre, the fare is Rs. 10 and for the subsequent distance it is Rs. 6 per km. Taking the distance covered as  $x$  km and total fare as Rs.  $y$ . Write a linear equation for this information: -  
(a) From the equation, find the total fare for the distance of 10 km.

(b) Find the distance travelled if the total fare is Rs. 154.

21. In  $\triangle ABC$ , D is midpoint of BC. If O is the mid-point of AE, then Prove that:

$$\text{ar}(\triangle BOE) = \frac{1}{2} \text{ar}(\triangle ABC)$$



22. Prove that the angle subtended by an arc at the centre of a circle is double the angle subtended by it at any point on the remaining part of the circle.

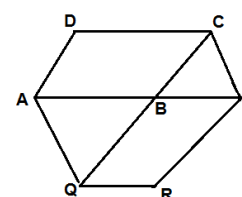
23. A residential colony has a population of 10800 and 30 litres of water  $L_s$  required per person per day for other purposes except drinking. For the effective utilization of rain water, a group of people decided for water harvesting. They constructed a water reservoir measuring 50 m x 27 m x 24 m to collect the rain water.

(a) For how many days the water of this tank is sufficient, if during rain the height of water level is 4 m?

(b) Which value is depicted by group of people?

24. Draw the graph of the equation :  $3x + 5y = 15$ . Find the coordinates of the point at which the line intersects the x and y axes. Also find the area of the triangle enclosed between the line and the two axes.

25. To construct a wall 2.5 m long 0.3 m thick and 6 m high, bricks of dimensions 50 cm x 15 cm x 10 cm, each are used. If the mortar occupies  $\frac{1}{10}$  of the volume of the wall, find the number of bricks used.



26. 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. Show that:  $\text{ar}(ABCD) = \text{ar}(PBQR)$

27. Construct a triangle ABC in which  $\angle B = 60^\circ$ ,  $\angle C = 45^\circ$  and  $AB + BC + CA = 12$  cm.

28. In a city, the weekly observations made on cost of living index are given below:

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

Draw a histogram and frequency polygon for the above data on the same graph paper

SECTION – E [OTBA]

29. Listening to Jeevan's Statement, Roshni concluded that his 'farm' might be any quadrilateral in shape. Do you agree with her opinion? Which shape will you get if the midpoints of adjacent sides are joined in order? Justify.

Jeevan : I used to divide the field in five parts joining mid points of the adjacent sides of the field to grow five different varieties of crops.

30. Listening to Uttapa's Statement, Roshni concluded that his farm might be a parallelogram in shape. Do you agree with her opinion? Prove that a quadrilateral is a parallelogram if its opposite sides are equal

Uttapa : In my field opposite sides were equal. one was common with Dhoondoop's field

31. Listening to Ram's Statement, Roshni concluded that his farm might be a rectangle in shape. Do you agree with her opinion? Prove that a parallelogram is a rectangle if its diagonals are equal.

Ram: In my field I used to join the opposite corners with ropes of equal length and the areas of the opposite triangles were formed