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SUMMATIVE ASSESSMENT-II 2016-17

SUBJECT - MATHEMATICS

CLASS- IX

Time 3:30Hrs

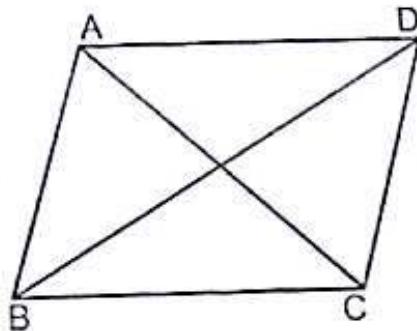
M.M:90

GENERAL INSTRUCTIONS::

- All questions are compulsory.
- Section A : 4 Questions of 1 mark each
- Section B : 6 Questions of 2 marks each
- Section C : 8 Questions of 3 marks each
- Section D : 10 Questions of 4 marks each
- Section E : 2 Questions of 3 marks each and 1 Question of 4 marks from open text themes.
- There is no overall choice.
- Constructions should be done neatly with appropriate labelling.

SECTION - A

Q1. The area of the parallelogram ABCD is 20 cm^2 . What is the area of $\triangle ABC$.

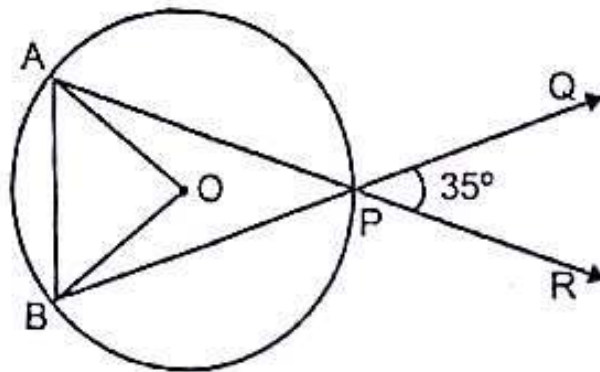


[P.T.O.]

FOR VISUALLY IMPAIRED:

What is the area of a parallelogram whose base is 8cm. and height is 4 cm.

Q2. Find the value of $\angle AOB$



FOR VISUALLY IMPAIRED:

Give the number of circles that can pass through three non collinear points.

Q3. Find the ratio of the surface area is to volume of the sphere of unit radius.

Q4. Find the probability of getting a multiple of 3 on the upper face in a single throw of a die?

SECTION - B

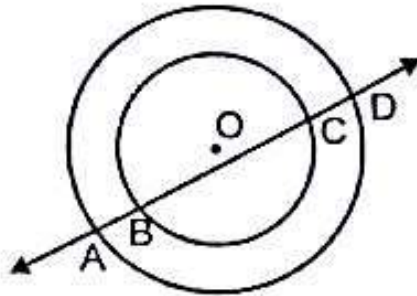
Q5. Express the linear equation in the form $ax + by + c = 0$ and indicate the values of a , b and c : $y - 2 = 0$

Q6. Find the radius of a sphere whose surface area is 154 cm^2 .

Q7 Ten observations 6, 11, 15, 18, $x+1$, $2x-13$, 30, 32, 35, 46 are written in ascending order. The median of the data is 24. Find the value of x .

[P.T.O.]

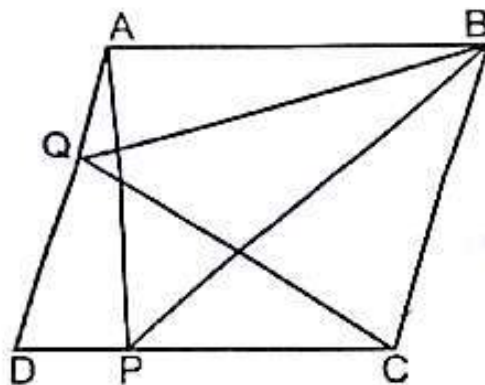
Q8. If a line intersects two concentric circles (circles with the same centre) with centre O at A, B, C and D, prove that $AB = CD$.



FOR VISUALLY IMPAIRED:

Prove that Equal chords of a circle subtend equal angles at the centre.

Q9. P and Q are any two points lying on the sides DC and AD respectively of a parallelogram ABCD. Show that $\text{ar}(\triangle APB) = \text{ar}(\triangle BQC)$.



FOR VISUALLY IMPAIRED:

If E, F, G and H are respectively the mid-points of the sides of a parallelogram ABCD, show that $\text{ar}(\triangle EFGH) = \frac{1}{2} \text{ar}(\triangle ABCD)$.

Q10. 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 the cap.

[P.T.O.]

SECTION- C

Q11. Draw the graph of $y=3$ as an equation in two variables. What does the graph represent?

FOR VISUALLY IMPAIRED:

Check which of the following are solutions of the equation $x - 2y = 4$ and which are not:

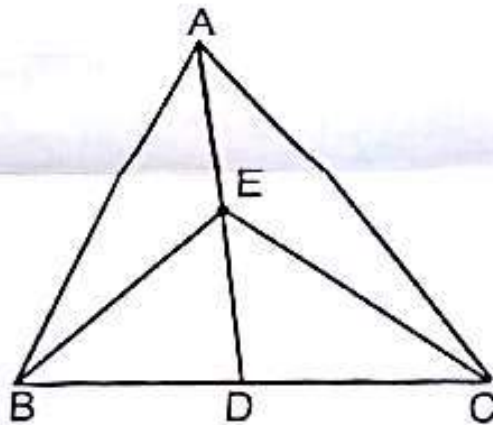
(i) (0, 2)

(ii) (2, 0)

(iii) (4, 0)

(iv) (1, 1)

Q12. E is any point on median AD of a $\triangle ABC$. Show that $\text{ar}(\triangle ABE) = \text{ar}(\triangle ACE)$.



FOR VISUALLY IMPAIRED

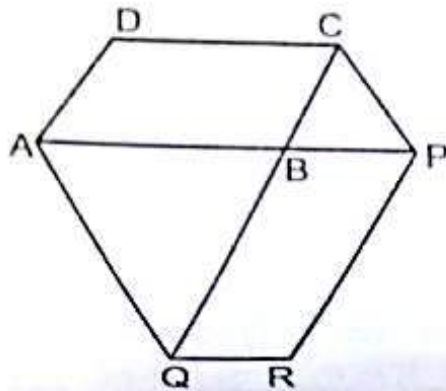
Show that the diagonals of a parallelogram divide it into four triangles of equal area.

Q13. 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 $\angle AEB = 60^\circ$.

[P.T.O.]

SECTION-D

19. Construct a triangle ABC, in which $\angle B = 60^\circ$, $\angle C = 45^\circ$ and $AB + BC + CA = 11$ cm.
20. 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".
21. 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 ar (ABCD) = ar (PBQR).



$$\frac{x_1 + x_2 + \dots + x_n}{n}$$

$$\frac{x_1 + x_2 + \dots + x_n}{n}$$

$$\frac{x_1 + x_2 + \dots + x_n}{n}$$

VISUALLY IMPAIRED:

XY is a line parallel to side BC of a triangle ABC. If BE \parallel AC and CF \parallel AB meet XY at E and F, respectively, show that ar (ABE) = ar (ACF)

2. A circular park of radius 20 m is situated in a colony. Three boys Ankur, Syed and David are sitting at equal distance on its boundary each having a toy telephone in his hands to talk to each other. Find the length of the string of each phone.
3. Fifty seeds were selected at random from each of 5 bags of seeds, and were kept under standardised conditions favourable to germination. After 20 days, the number of seeds which had germinated in each collection were counted and recorded as follows:

[P.T.O.]

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

$$\frac{1360}{9}$$

$$x + y = 100$$

$$73 \times \frac{10n}{9}$$

What is the probability of germination of

- (i) more than 41 seeds in a bag?
- (ii) less than 49 seeds in a bag?
- (iii) at least 42 seeds in a bag?
- (iv) at most 48 seeds in a bag?

$$70n + \frac{730n}{9}$$

$$\frac{4}{3} \pi r^3$$

$$\frac{730}{630}$$

Q24. 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 value is depicted from this act?

Q25. Twenty seven solid iron spheres, each of radius r and surface area S are melted to form a sphere with surface area S' . Find the

- (i) radius r' of the new sphere, (ii) ratio of S and S'

Q26. The following table gives the distribution of students of two sections according to the marks obtained by them:

Section A		Section B	
Marks	Frequency	Marks	Frequency
0-10	3	0-10	5
10-20	9	10-20	19
20-30	17	20-30	15
30-40	12	30-40	10
40-50	9	40-50	1

$$= 100$$

$$\frac{9}{2} m$$

$$\frac{10n}{9} = 9m$$

Represent the marks of the students of both the sections on the same graph by two frequency polygons. From the two polygons compare the performance of the two sections.

[P.T.O.]

ZZdr-55

Q27. Shade the triangle formed by the graphs of $2x-y=4$, $x+y=2$ and the y axis. Write the coordinates of the vertices of The triangle formed.

Q28. The mean marks (out of 100) of boys and girls in an examination are 70 and 73 respectively. If the mean marks of All the students in that examination is 71, find the ratio of the number of boys to the number of girls

x (boys), y (girls)
 $70x + 73y = 71(x+y)$
 $70x + 73y = 71x + 71y$
 $70x - 71x = 71y - 73y$
 $-x = -2y$
 $x = 2y$
 Ratio of boys to girls = $2:1$

SECTION - E

OPEN TEXT BASED ASSESSMENT

THEME 1: SOLVING MYSTERY OF MESSED UP FIELDS

Q29. Read the statement of Nekchand and write the property used by Roshni to reach the conclusion that Nekchand's field should be a square or a rectangle? What additional information does she require to Confirm that his field is actually a square or a rectangle? Give any two properties each of rectangle and Square.

Nekchand	In my field when I used to join the opposite corners with ropes, the lengths of the ropes required were equal and the two ropes bisected each other.
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[4marks]

Q30. For Uttapa's field, Roshni concluded that it is in the shape of a parallelogram. Do you agree? Justify her statement By giving proper reasons. What other properties of parallelogram can she check to confirm her statement. Give At least two reasons. (3 marks)

Uttapa	In my field opposite sides were equal. One was common with Dhoondoop's field.
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Q31. By David's Statement, Roshni concluded that his farm might be a rectangular in shape. Do you agree with her opinion? Justify by explaining why was Ram's field rectangular in shape?

David	In my field opposite sides were equal. It used to look like Ram's field.
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$m + n = 7100$
 $x_1 + x_2 = 70$
 $x_1 + x_2 = 73$
 $x_1 = 73 - x_2$
 $73 - x_2 + x_2 = 70$
 $73 = 70$ (Contradiction)
 Therefore, it is not a rectangle.