

Octahedral classes, kharadi
2nd floor, yashwant plaza, near bank of India,

Class 09 - Mathematics
Circle/cons./Triangles/stats/Herons

Maximum Marks: 40

Time Allowed: 1 hour and 30 minutes

Section A

1. Attempt either 1-5 or 6-10

15

- a) The perimeter of a triangular field is 420 m and its sides are in the ratio 6 : 7 : 8. Find the area of the triangular field.
- b) A parallelogram, the length of whose side is 60 m and 25 m has one diagonal 65 m long. Find the area of the parallelogram.
- c) In a rectangular field of dimensions 60 m \times 50 m, a triangular park is constructed. If the dimensions of the park are 50 m, 45 m, and 35 m, find the area of the remaining field.
- d) If the side of a rhombus is 10 cm and one diagonal is 16 cm, then the area of the rhombus is 96 cm². State whether the statement is True or False and justify your answer.
- e) The side of a triangular field is 52m, 56m, and 60m find the cost of levelling the field Rs 18 per meter if a space of 4 cm is to be left for entry gate.
- f) The lengths of 62 leaves of a plant are measured in millimetres and the data is represented in the following table:

Length (in mm)	Number of leaves
118 - 126	8
127 - 135	10
136 - 144	12
144 - 153	17
154 - 162	7
163 - 171	5
172 - 180	3

Draw a histogram to represent the data above.

- g) Below are the scores of two groups of Class IV students on a test of reading ability :

Class interval	Group A	Group B
50-52	4	2
47-49	10	3
44-46	15	4
41-43	18	8
38-40	20	12
35-37	12	17
32-34	13	22
Total	92	68

Construct a frequency polygon for each of these groups on the same axes.

- h) The mean of 10 numbers is 20. If 8 is subtracted from every number, what will be the new mean?

- i) The following data on the number of girls (to the nearest ten) per thousand boys in different sections of the society is given below :

Section	Number of girls per thousand boys
Scheduled caste	940
scheduled tribe	970
Non SC/ST	920
Backward districts	950
Non-backward districts	920
Rural	930
Urban	910

- Represent the information above by a bar graph.
 - In the classroom discuss what conclusion can be arrived at from the graph.
- j) If the ratio of mean and median of a certain data is 2:3, then find the ratio of its mode and mean.

Section B

2. Answer the following

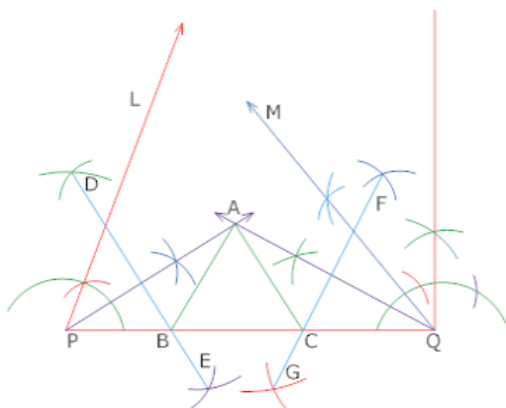
10

- Prove that the line joining the mid-points of the two parallel chords of a circle passes through the centre of the circle.
- The lengths of two parallel chords of a circle are 6 cm and 8 cm. If the smaller chord is at distance 4 cm from the centre. What is the distance of the other chord from the centre?
- In figure, AB and AC are two equal chords of a circle whose centre is O. If $OD \perp AB$ and $OE \perp AC$, prove that ADE is an isosceles triangle.

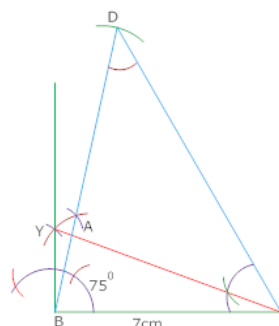
3. Answer the following

15

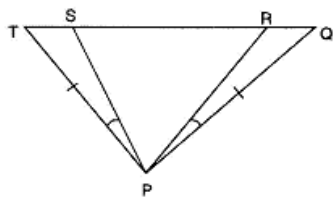
- Construct the triangle ABC, in which $\angle B = 60^\circ$, $\angle C = 45^\circ$ and $AB + BC + CA = 11\text{cm}$



- Construct a triangle ABC in which $BC = 7\text{cm}$, $\angle B = 75^\circ$ and $AB + AC = 9\text{cm}$.



- ABC is a right angled triangle such that $AB = AC$ and bisector of angle C intersects the side AB at D. Prove that $AC + AD = BC$.
- ABC is a right-angled triangle in which $\angle A = 90^\circ$ and $AB = AC$. Find $\angle B$ and $\angle C$.
- In figure, $PQ = PT$ and $\angle TPS = \angle QPR$. Prove that triangle PRS is isosceles.



- f) ABC is a triangle in which altitudes BE and CF to sides AC and AB are equal. Show that $\triangle ABE \cong \triangle ACF$, $AB = AC$ i.e. $\triangle ABC$ is an isosceles triangle.

