



CLASS 9 MATHS NOTES

CONSTRUCTIONS

CHAPTER-11
CONSTRUCTIONS
KEY POINTS

- Following types of constructions using a ruler and compass are important.
 1. Construction of angle of 60° , 120° , 30° , 90° , etc.
 2. Bisecting a given angle i.e. to draw angle bisector.
 3. Construction of the perpendicular bisector of a given line segment.
 4. Construction of the perpendiculars to a given line from a point on the line or out side the line.
 5. Construction of the parallel lines to a given line.
 6. Construction of a triangle given its base, a base angle and the sum of the other two sides.
 7. Construction of a triangle given its base, a base angle, and the difference of the other two sides.
 8. Construction of a triangle given its perimeter and its two base angles.

Important
Questions
with
Solutions

Questions

1. Draw a line segment of 7.2 cm and bisect it. Also measure each part.
2. Draw perpendicular bisector of $AB = 6.4$ cm.
3. Draw a line segment $PQ = 8$ cm. Draw a perpendicular at P.
4. Draw a line $AB = 7.9$ cm and draw perpendiculars at A and B.
Are these two perpendiculars parallel to each other?
5. Draw an angle $\angle ABC = 32^\circ$ using protractor. Construct another angle equal to $\angle ABC$ using compass.
6. Construct the angles of the following measurements using compass.
 $90^\circ, 22\frac{1}{2}^\circ, 15^\circ, 75^\circ, 105^\circ, 135^\circ$
7. Construct a rhombus whose side is 3.4 cm and one of its angle is 45° .

8. Construct $\triangle XYZ$ in which $XY = 4.5$ cm, $YZ = 5.0$ cm. and $ZX = 6.0$ cm. Also draw angle bisector of largest angle.
9. Construct an equilateral triangle of side 6 cm. and label its vertices as P, Q and R. From point Q draw a median QT.
10. Draw a line segment $AB = 13.2$ cm. Find $\frac{1}{4}AB$ using ruler and compass. Write steps of construction.
11. Construct a right triangle ABC , $\angle B = 90^\circ$ $AB + AC = 10$ cm., $BC = 6$ cm.
12. Construct a $\triangle PQR$ in which $QR = 7$ cm. $\angle Q = 75^\circ$ and $PQ + PR = 13$ cm.
13. Construct a $\triangle PQR$ in which $QR = 6$ cm. $\angle Q = 30^\circ$ and $PQ - PR = 3$ cm.
14. Construct a $\triangle XYZ$ in which $YZ = 4.1$ cm. $\angle Y = 45^\circ$, and $XY + XZ = 6.7$ cm.
15. Construct a $\triangle PQR$ in which $QR = 5$ cm. $\angle R = 45^\circ$ and $PR - PQ = 1.6$ cm.
16. Construct a $\triangle XYZ$ in which $\angle Y = 30^\circ$, $\angle Z = 90^\circ$ and $XY + YZ + ZX = 11$ cm.
17. Construct a triangle ABC in which $\angle B = 45^\circ$, $\angle C = 60^\circ$ and the perpendicular from the vertex A to the base BC is 4.5 cm.
18. Construct a triangle with perimeter 12 cm and ratio of their angles are 3 : 4 : 5.
19. Government wish to make an old age home of right triangular shape. If one side is 13m and sum of hypotenuse and other side is 15 m then Construct the triangle taking measurement in cm.
20. Eco club of a school created a triangular park $\triangle ABC$ to maintain greenery of the school. If $BC = 7$ m, $\angle B = 75^\circ$, $AB + AC = 13$ m then Construct $\triangle ABC$ taking measurement in cm.
21. Draw a line ℓ and take a point P which is not on ℓ . From point P draw $m \parallel \ell$.
22. Construct a triangle DEF in which $DE = 5$ cm $\angle D = 120^\circ$ and $EF - DF = 3.6$ cm.
23. Construct an equilateral triangle, the sum of its two sides is 8 cm.
24. Construct a right angled triangle with base 5.4 cm and difference of

25. Construct a triangle PQR with $PQ = 5$ cm. $\angle P = 105^\circ$ and $PR + QR = 8$ cm.
26. Construct a triangle whose perimeter is 11.9 cm and base angles are 80° and 60° .
27. Construct an isosceles triangle XYZ with $YZ = ZX = 8$ cm. and median $YT = 4$ cm.

PRACTICE TEST

Time : 50 Min.

Constructions

M.M. 20

1. Draw an angle of 60° . (1)
2. What is the length of bisected part of a line segment 7.8 cm? (1)
3. Draw any angle and bisect it. (2)
4. Draw line segment $AB = 8.4$ cm and draw perpendicular at its mid-point. (2)
5. Draw $PQ = 10$ cm. Divide it into four equal parts using ruler and compass. Write measurement of each part. (3)
6. Construct $\triangle XYZ$ in which base $XY = 6$ cm and length of median from Z is 3.7 cm. (3)
7. Construct a right triangle when one side is 3.5 cm and sum of other side and hypotenuse is 5.5 cm. (4)
8. Construct a triangle PQR where perimeter is 10 cm and each base angle is 45° . (4)