AGLASEM.COM

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 60^0, 120^0, 30^0, 90^0, 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 $\angle ABC = 32^0$ using protractor. Construct another angle equal to $\angle ABC$ using compass.
6. Construct the angles of the following measurements using compass.
   $90^0,\ 22\frac{1}{2}^0, 15^0, 75^0, 105^0, 135^0$
7. Construct a rhombus whose side is 3.4 cm and one of its angle is 45^0.

8. Construct ΔXYZ 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, $\angle B = 90^0$ AB + AC = 10 cm., BC = 6 cm.

12. Construct a ΔPQR in which QR = 7 cm. $\angle Q = 75^0$ and PQ + PR = 13 cm.

13. Construct a ΔPQR in which QR = 6 cm. $\angle Q = 30^0$ and PQ – PR = 3 cm.

14. Construct a ΔXYZ in which YZ=4.1 cm. $\angle Y=45^0$, and XY + XZ = 6.7 cm.

15. Construct a ΔPQR in which QR = 5 cm. $\angle R=45^0$ and PR-PQ = 1.6 cm.

16. Construct a ΔXYZ in which $\angle Y = 30^0$, $\angle Z = 90^0$ and XY + YZ + ZX = 11cm.

17. Construct a triangle ABC in which $\angle B = 45^0$, $\angle C=60^0$ 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 ΔABC to maintain greenery of the school. If BC = 7m, $\angle B=75^0$, AB + AC = 13m then

    Construct ΔABC taking measurement in cm.

21. Draw a line ℓ and take a point P which is not on ℓ. From point P draw m $||\ell$.

22. Construct a triangle DEF in which DE = 5 cm $\angle D = 120°$ 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 hypotenuse and perpendicular is 1.9 cm.

25. Construct a triangle PQR with PQ = 5 cm. $\angle P = 105°$ 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 measuement of each part. (3)

6. Construct ΔXYZ 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)