QB365 Important Questions - Constructions

9th Standard CBSE

Mathematics

Reg.No.:

Total Marks: 50

Time: 01:00:00 Hrs

Section-A 1) Construct an equilateral triangle, given its side and justify the construction. 5 2) Construct an equilateral triangle with one side 6 cm. 5 3) Construct an equilateral triangle LMN, one of whose sides is 5 cm. Bisect $\angle M$ of the triangle. 5 4) Draw an angle of 40° with a protractor and then construct an angle 80° using ruler and compass. 5 5) Draw a line segment AB = 5 cm. From the point A draw a line segment AD = 6 cm making an angle of 60°. Draw 5 perpendicular bisector of AD. on BANK 36. 1y the choses in 6) (i)Construct a \triangle ABC in which AB=5.8cm, BC+CA=8.4cm and B=60⁰ 5 (ii)Measure AC (iii)Measure BC (iv)Is ACV+BC=8.4cm? (v)Meenu says that ∠ACB=84⁰.Verify by measurement.Can you say that Meenu is right?Which value is depicted by Meenu's statement? 7) (i) Construct a triangle ABC in which BC = 5 ern, \angle B = 45° and AB-AC = 2.8 cm. 5 (ii)Measure AB. (iii)Measure AC (iv) Verify that AB - AC = 2.8 em. (v)Hari comments that ∠ACB = 112°. Is he true? Which value is depicted by comment of Hari? 8) (i) Construct a triangle PQR with base 5 PQ = 8.4 em, LP = 45° and PR - QR = 2.8 cm. (ii) Measure PR. (iii) Measure QR. (i\') Verify that PR - QR = 2.8 em. (v) Gaffar says that L PQR = 85°. Is he correct? Which value is depicted by his statement?

Section-B

9) (i) Construct a L1ABC in which Be = 5.7cm, \angle B = 30° and AC - AB = 3 cm.

- (ii) Measure AC
- (iii) Measure AB.
- (iv) Verify that AC AB = 3 em.

(v) Apala ponders that L BAC = J 38°. Is she correct? Find by measurement. Which value is depicted by her ponderation?

Section-A

1)

Given: Side (say 4 cm) of an equilateral triangle.

Required: To construct the equilateral triangle and justify the construction.

Steps of Construction:

1. Take a ray AX with initial point A. From AX, cut off AB = 4 cm.



- 2. Taking A as centre and radius (= 4 em), draw an arc of a circle, which intersects AX, say at a point B.
- 3. Taking B as centre and with the same radius as before, draw an arc intersecting the previously drawn arc, say at a point C.
- 4. Draw the ray AE passing through C.
- 5. Draw the ray BF passing through e. Then Δ ABC is the required triangle with given side 4 cm.

2)

Steps of Construction

1. Draw BC = 6 cm.

2. With B as centre and 6 cm as radius, draw an arc on one side of BC.

3. With C as centre and 6 cm as radius, draw another arc on the same side of BC to intersect the former arc

at A.

4. Join AB and AC. Then, Δ ABC is the required equilateral triangle.



3)

Steps of Construction

1. Draw a line segment MN = 5 cm.

2. With M as centre and 5 cm as radius, draw an arc on one side of MN.

3. With N as centre and 5 cm as radius, draw another arc on the same side of MN to intersect the former arc at L.

4. Join LM and LN. Then, Δ LMN is the required equilateral triangle.



5. Taking M as centre and any radius, draw an arc to intersect the line segments MN and ML at P and Q respectively.

6. Next, taking P and Q as centres and with 1 the radius more than $\frac{1}{2}$ PQ, draw arcs to intersect each other, say at R.

7. Draw the ray MR. This ray MR is the required bisector of the $\angle M$.

5

Steps of Construction

- 1. Draw an angle $AOB = 40^{\circ}$ with a protractor.
- 2. Taking O as centre and some radius, draw an arc of a circle, which intersects OA at P and OB at Q.



3. Taking P as centre and radius QP, draw an arc of a circle, which intersects the arc drawn in step 2, say at a point R.

4. Join OR and produce to form a ray Oc. Then, $\angle COB = 80^{\circ}$

5)

Steps of Construction

1. Draw a line segment AB = 5 cm.

2. Taking A as centre and some radius, draw an arc of a circle, which intersects AB, say at a point P.

3. Taking P as centre and with the same radius as before, draw an arc intersecting the previously draw arc, say at a point E.

4. Draw the ray AC passing through E.

5. From ray AC, cut off AD = 6 cm. Then, $\angle DAB$ is the required angle of 60° such that AD = 6 cm.

6. Now, taking A and D as centres and radius 1 more than $\frac{1}{2}$ AD, draw arcs on both sides of the line segment AD (to intersect each other).



5

- 1. Draw the base AB = 5.8 ern.
- 2. At the point A, make an angle, say XAB=60°.
- 3. Cut a line segment AD equal to BC + CA = 8.4 cm from the ray BX.

4.Join DB

- 5.Make an angle DBY equal to ADB.
- 6.Let BY intersect AD at C. Then, ABC is the required triangle.



Lourement, ∠ACB= 84° Meenu is right. The value 'exactness' is depicted by Meenu's statement.

- 1. Draw the base BC = 5 em.
- 2. At point B make an angle XBC = 45°.
- 3. CutthelinesegmentBD=AB-AC(=2.8 crn) from the ray BX.

4. Join DC.

- 5. Draw the perpendicular bisector, say PQofDC.
- 6. Let it intersect BX at a point A.
- 7. Join AC.

Then, ABC is the required triangle.



- (ii) By measurement, AB= l3cm
- (iii) By measurement, AC= IO.2cm
- (iv) AB-AC= 13-10.2=2.8cm

UESTION BANK 36. 5.IIWWW.db365.II (v) Yes! Hari is true as by measurement $\angle ACB = 112^{\circ}$.

The value 'wise' is depicted by comment of Hari.

- 1. Draw the base PQ = 8.4 em.
- 2. At point P make an angle say XPQ=45°.
- 3. Cut the line segment PD = 2.8 ern from rayPX.
- 4. Join DQ and draw the perpendicular bisector of DQ.
- 5. Let it intersect PX at a point R. Join RQ. Then PQR is the required triangle.



- (ii) By measurement, PR= lOcm

- ∴Gaffar is correct. ∴The value 'intelligence' is depicted by his statement. Section-B

- 1. Draw the base BC = 5 "7
- 2. At point B make XBC= 30°.
- 3. Cut the line segment =3 cm iron the line BX extended II opposite side of line segment Be.
- 4. Join DC and draw the perpendicular bisector, say PQ of De.
- 5. Let PQ intersect BX at A. Join AC.Then, ABC is the required triangle.



- (ii) By measurement, AC= 4.5cm
- (iii) By measurement, AB= 1.5cm
- (iv) AC -AB =4.5 -1.5 = 3 em
- QUESTION BANK 365.IN (v) The value 'ponderance' is depicted by her ponderation.