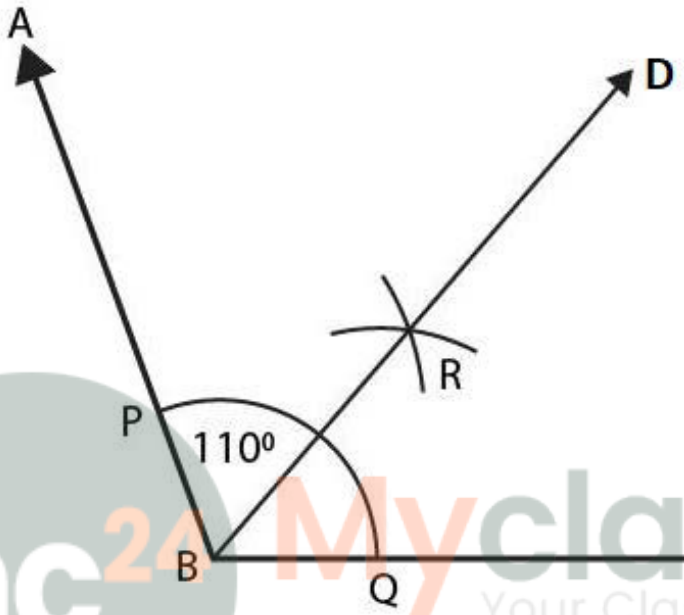
EXERCISE 11.3

1. Draw an angle of 110° with the help of a protractor and bisect it. Measure each angle.
Solution:

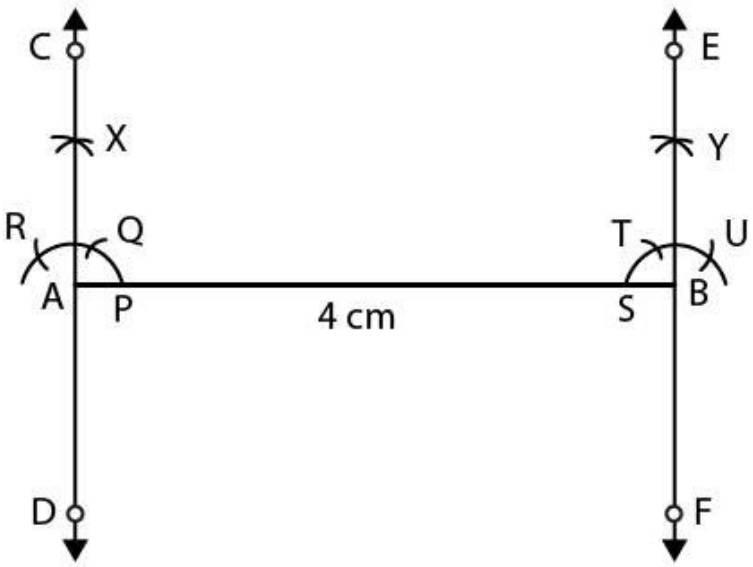
According to the question,
An angle ABC = 110°.
To draw the bisector of ∠ABC



Steps of construction:
1. With B as centre and a convenient radius, draw an arc to intersect the rays BA at P and BC at Q respectively.
2. With centre P and a radius greater than half of PQ, draw an arc.
3. With centre Q and the same radius (as in step 2), draw another arc to cut the previous arc at R.
4. Draw ray BR.
The ray BR is the required bisectors of ∠ABC.

2. Draw a line segment AB of 4 cm in length. Draw a line perpendicular to AB through A and B, respectively. Are these lines parallel?
Solution:

According to the question,
A line segment AB of length 4cm.
To draw perpendicular to AB through A and B, respectively.

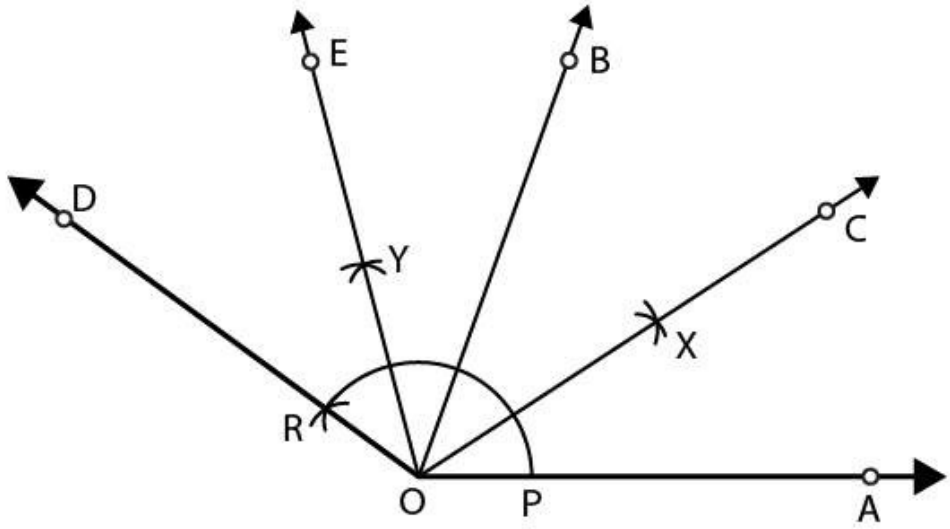


Steps of construction:
1. Draw AB = 4 cm.
2. With A as centre, draw an arc, cutting AB at P.
3. With P as centre and the same radius, draw an arc cutting the arc drawn in step 2 at Q.
4. With Q as centre and the same radius, draw an arc, cutting the arc drawn in step 3 at R.
5. With R as centre and the same radius, draw an arc, cutting the arc drawn in step 5 at X.
6. Draw OX and produced it to C and D.
7. Now, repeat the steps from 2 to 7 to draw the line EF perpendicular through B.

Yes, these lines are parallel because sum of the interior angles on the same side of the transversal is 180º.

3. Draw an angle of 80° with the help of a protractor. Then construct angles of
(i) 40°
(ii)160°
(iii) 120°.
Solution:

According to the question:
We have to draw an angle of 80° with the help of a protractor. Then construct angles of
(i) 40°
(ii)160°
(iii) 120°



Steps of construction:

1. Draw a ray OA.
2. With the help of a protractor, construction ∠BOA = 80º
3. Taking O as centre and any suitable radius, draw an arc to intersect rays OA and OB at points P and Q respectively.
4. Bisect ∠BOA as done in Q1. Let ray OC be the bisector of ∠BOA, then ∠ROA= ½ ∠BOA = ½ × 80º = 40º
5. With Q as centre and radius equal to PQ, draw an arc to cut the extended arc PQ at R. Join OR and produce it to form ray OD, then ∠DOA = 2∠BOA = 2 × 80 = 40
6. Bisect ∠DOB as in Q1. Let OE be the bisector of ∠DOB is then ∠EOA = ∠EOB +∠BOA = ½ ∠DOB +∠BOA= ½ (80) + 80 = 40 + 80 = 120º

4. Construct a triangle whose sides are 3.6 cm, 3.0 cm and 4.8 cm. Bisect the smallest angle and measure each part.

Solution:

According to the question,
We have to construct a triangle whose sides are 3.6 cm, 3.0 cm and 4.8 cm.
And to bisect the smallest angle and measure each part.
Steps of construction:
Step1: Draw a line AB = 4.8 cm.
Step2: Now, take raidus of 3 cm and centre ‘A’ draw an arc. And take radius of 3.6 cm and centre ‘B’ draw an arc that intersect our previous arc at ‘C’.
Step3: Join CA and CB we get required triangle ABC.