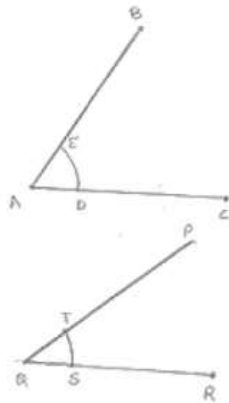


RD SHARMA
Solutions
Class 10 Maths
Chapter 11
Ex 11.2

1. Draw an angle and label it as $\angle BAC$. Construct another angle, equal to $\angle BAC$.

Sol:

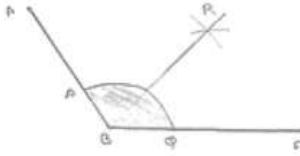


Steps of construction:

1. Draw an angle $\angle BAC$ and a line segment QR
 2. With center A and any radius, draw an arc which intersects $\angle BAC$ at E and D
 3. With center Q and same radius draw arc which intersects QR at S .
 4. With center S and radius equal to DE , draw an arc which intersects previous arc at T
 5. Draw a line segment joining Q and T
- $\therefore \angle PQR = \angle BAC$

2. Draw an obtuse angle, Bisect it. Measure each of the angles so obtained.

Sol:

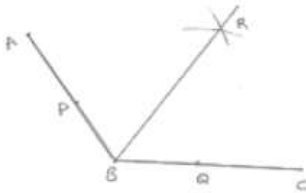


Steps of construction:

1. Draw angle ABC of 120°
2. With center B and any radius, draw an arc which intersects AB at P and BC at Q
3. With center P and Q and radius more than $\frac{1}{2}PQ$, draw two arcs, which intersect each other at R .
4. Join BR
 $\therefore \angle ABR = \angle RBC = 60^\circ$

3. Using your protractor, draw an angle of measure 108° . With this angle as given, draw an angle of 54° .

Sol:

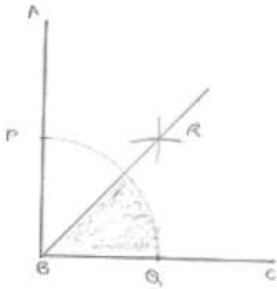


Steps of construction:

1. Draw an angle ABC of 108°
2. With center B and any radius, draw an arc which intersects AB at P and BC at Q
3. With center P and Q and radius more than $\frac{1}{2}PQ$, draw two arcs, which intersect each other at R .
4. Join BR
 $\therefore \angle RBC = 54^\circ$

4. Using protractor, draw a right angle. Bisect it to get an angle of measure 45° .

Sol:

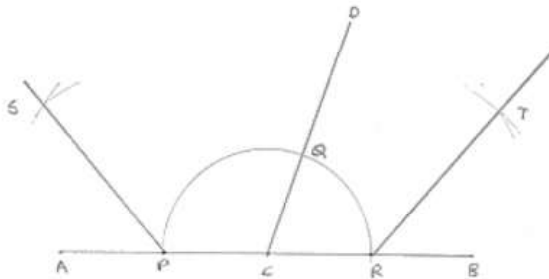


Steps of construction:

1. Draw an angle ABC of 90°
 2. With center B and any radius, draw an arc which intersects AB at P and BC at Q
 3. With center P and Q and radius more than $\frac{1}{2}PQ$, draw two arcs, which intersect each other at R .
 4. Join RB
- $\therefore \angle RBC = 45^\circ$

5. Draw a linear pair of angles. Bisect each of the two angles. Verify that the two bisecting rays are perpendicular to each other.

Sol:

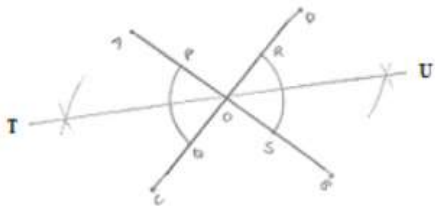


Steps of construction:

1. Draw two angle DCA and DCB forming Linear pair
 2. With center C and any radius, draw an arc which intersects AC at P , CD at Q and CB at R .
 3. With center P and Q and any radius draw two arcs which intersect each other at S
 4. Join SC
 5. With center Q and R any radius draw two arcs, which intersect each other at T .
 6. Join TC
- $\angle SCT = 90^\circ$ [By using protractor]

6. Draw a pair of vertically opposite angles. Bisect each of the two angles. Verify that the bisecting rays are in the same line.

Sol:

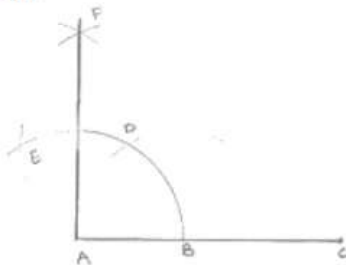


Steps of construction:

1. Draw a pair of vertically opposite angle AOC and DOB
 2. With center O and any radius drawn two arcs which intersect OA at P, Q, OB at S and OD at R.
 3. With center P and Q and radius more than $\frac{1}{2}PQ$, draw two arcs which intersect each other at T.
 4. Join to
 5. With center R and S radius more than $\frac{1}{2}RS$, draw two arcs which intersect each other at U.
 6. Join OU.
- $\therefore TOU$ is a straight line

7. Using ruler and compasses only, draw a right angle.

Sol:

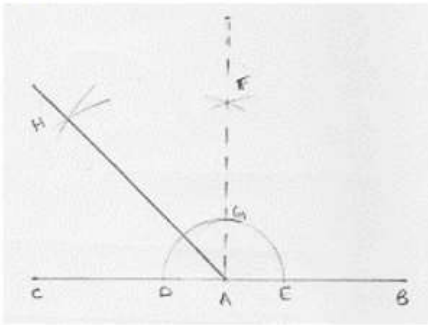


Steps of construction:

1. Draw a line segment AB
 2. With center A and any radius draw arc which intersect AB at C.
 3. With center C and same radius draw an arc which intersects AB at C.
 4. With center D and same radius draw arc which intersect arc in (2) at E.
 5. With centers E and C and any radius, draw two arcs which intersect each other at F.
 6. Join FA
- $\angle FAB = 90^\circ$

8. Using ruler and compasses only, draw an angle of measure 135° .

Sol:

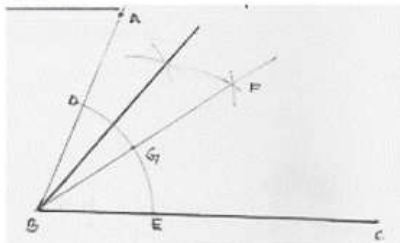


Steps of construction:

1. Draw a line segment AB and produce BA to point C.
2. With center A and any radius draw arc which intersect AC at D and AB at E.
3. With center D and E and radius more than $\frac{1}{2}DE$, draw two arcs which intersect each other at F.
4. Join FA which intersect the arc in (2) at G.
5. With centers G and D and radius more than $\frac{1}{2}GD$, draw two arcs which intersect each other at H.
6. Join HA
 $\therefore \angle HAB = 135^\circ$

9. Using a protractor, draw an angle of measure 72° . With this angle as given, draw angles of measure 36° and 54° .

Sol:



Steps of construction:

1. Draw an angle ABC of 72° with the help of protractor.
2. With center B and any radius, draw an arc which intersect AB at D and BC at E.
3. With center D and E and radius more than $\frac{1}{2}DE$, draw two arcs which intersect each other at F.
4. Join BF which intersect the arc in (2) at G.
5. With centers D and G and radius more than $\frac{1}{2}DG$, draw two arcs which intersect each other at H.
6. With centers D and G and radius more than $n\frac{1}{2}DG$ draw two arcs which intersect each other at H
7. Join HB

$$\therefore \angle HBC = 54^\circ$$

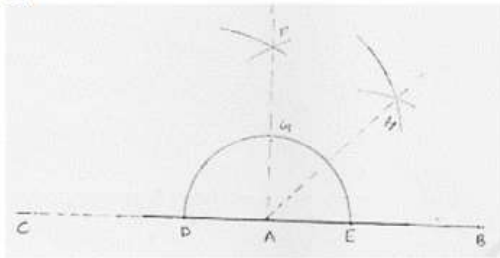
$$\angle FBC = 36^\circ$$

10. Construct the following angles at the initial point of a given ray and justify the construction:

(i) 45° (ii) 90°

Sol:

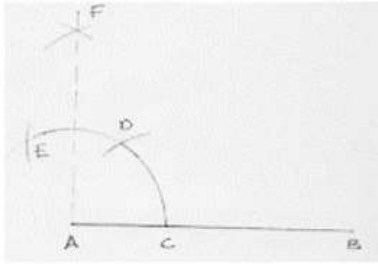
(i)

**Steps of construction:**

1. Draw a line segment AB and produce BA to point C.
2. With center A and any radius drawn an arc which intersect AC at D and AB at E.
3. With center D and E and radius more than $\frac{1}{2}DE$, draw arcs cutting each other at F.
4. Join FA which intersect arc in (2) at G.
5. With centers G and E and radius more than $\frac{1}{2}GE$, draw arcs cutting each other at H.

6. Join HA
 $\therefore \angle HAB = 45^\circ$

(ii)



Steps of construction:

1. Draw a line segment AB.
2. With center A and any radius draw an arc which intersects AB at C.
3. With center C and same radius draw an arc which intersects previous arc at D.
4. With centers D same radius draw an arc which intersects are in (2) at E.
5. With centers E and D same radius more than $\frac{1}{2}$ ED draw an arc cutting each other at F.
6. Join FA
 $\angle FAB = 90^\circ$