

# Practical Geometry

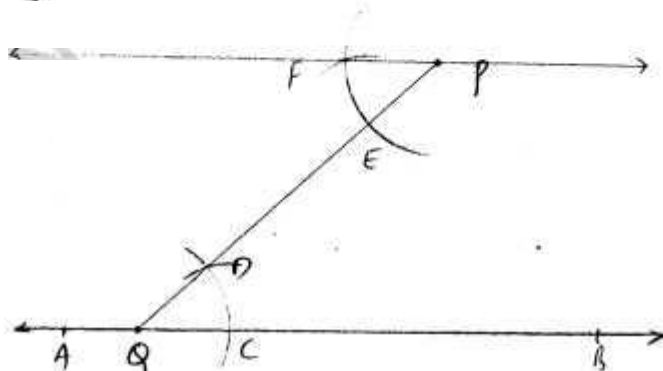
1.

Given. Any line  $AB$  and a point  $P$  outside  $AB$ .

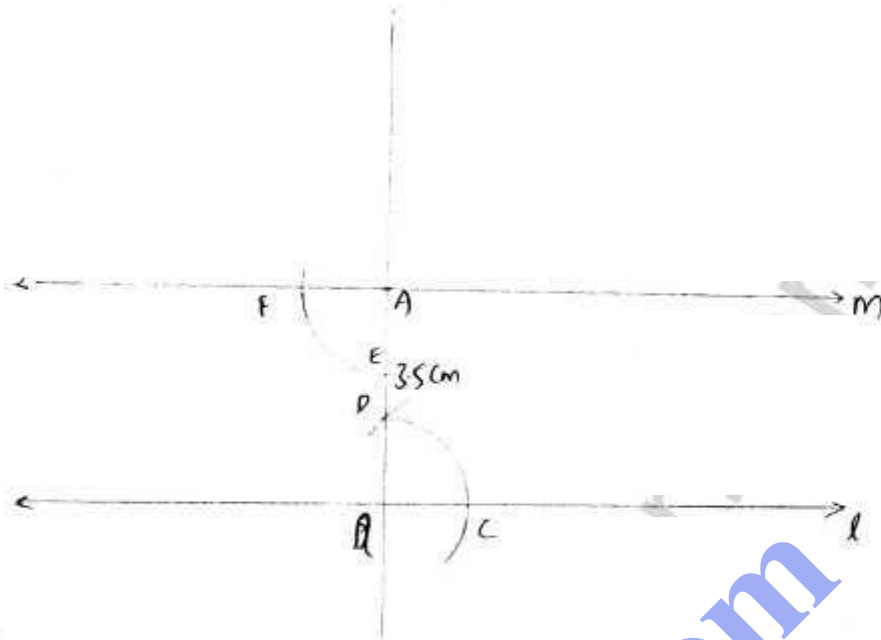
Required. To draw a line parallel to  $AB$  and passing through the point  $P$ .

Steps of Construction:

1. Take any point  $Q$  on  $AB$ . Join  $P$  and  $Q$ .
2. With  $Q$  as centre and any suitable radius, draw an arc to meet  $AB$  at  $C$  and  $QP$  at  $D$ .
3. With  $P$  as centre and same radius (as in step 2), draw an arc to meet  $PQ$  at  $E$ .
4. Measure the segment  $CD$  with Compass.
5. With  $E$  as centre and radius equal to  $CD$ , draw an arc to cut the previous arc at  $F$ .
6. Draw a line passing through  $P$  and  $F$ , then  $PF$  is the required line parallel to the line  $AB$  and passing through  $P$ .



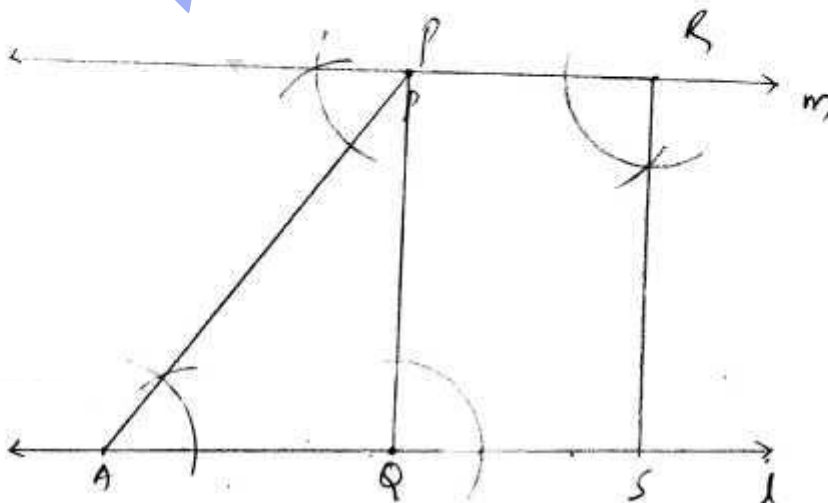
2



Steps:

1. Take any point on line  $l$  i.e.  $Q$ .
2. Take a line perpendicular i.e.  $90^\circ$  to line  $l$ .
3. Take a point on this perpendicular  $A$  above  $35$  cm from line  $l$ .
4. Repeat the same procedure from step 2 in problem no. 1

3.



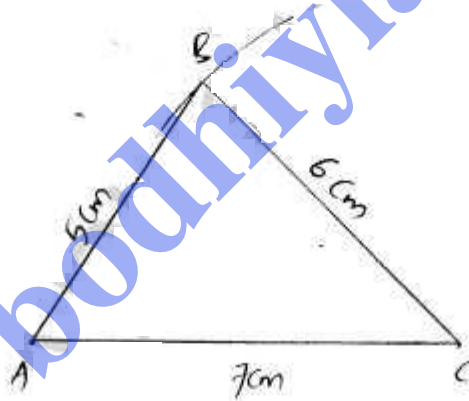
Steps:

1. Repeat the same procedure in pb. 1
2. After the steps followed in pb. Now draw a line PQ by joining P and Q, Q is a point on line l.
3. Now for this line PQ, draw a line parallel to RS with same steps followed in problem no. 1

The parallel lines represent a "Rectangle", "parallelogram"

4 ps

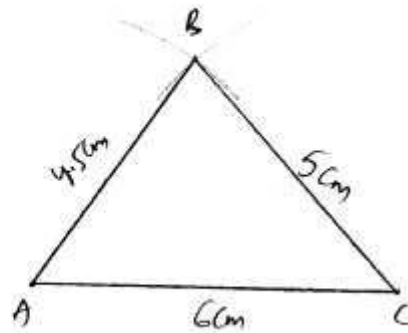
(ii)



Steps

1. Draw a line segment  $AC = 7\text{cm}$
2. With A as centre and radius  $5\text{cm} = AB$ , draw an arc
3. With C as centre and radius  $6\text{cm} = BC$ , draw an arc to cut the previous arc at B.
4. Join AB and BC. Then ABC is the required Triangle.

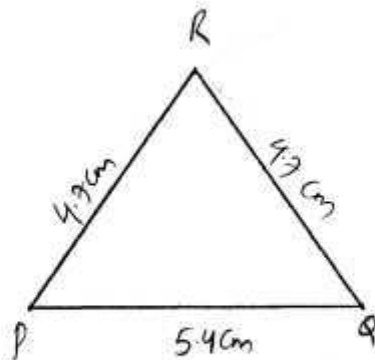
ii)



Steps :

1. Draw a line segment of length  $AC = 6\text{cm}$ .
2. With  $A$  as centre and radius  $4.5\text{cm} = AB$ , draw an arc.
3. With  $C$  as centre and radius  $5\text{cm} = BC$ , draw an arc to cut the previous arc at  $B$ .
4. Join  $AB$  and  $BC$ . Then  $ABC$  is required Triangle.

5 pt



Steps:

- i) Draw a line segment of length  $PQ = 5.4\text{cm}$ .

- ii) With  $P$  as centre and radius  $4.7\text{cm} = PR$ , draw an arc
- iii) With  $Q$  as centre and radius  $= 4.7\text{cm} = QR$ , draw an arc to cut the previous arc at  $B$ .
- iv) Join  $PR$  and  $QR$ . Then  $PQR$  is required isosceles triangle

6.



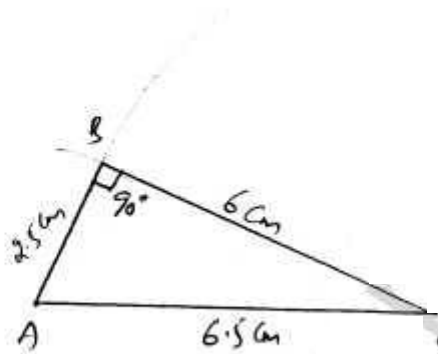
- i) Draw a line segment  $LM$  of length  $5.3\text{cm}$
- ii) With  $L$  as centre and radius  $5.3\text{cm}$ , draw an arc
- iii) With  $M$  as centre and radius  $5.3\text{cm}$ , draw an arc to cut the previous arc at  $A$
- iv) Join  $LN$  and  $MN$ , then  $\triangle LMN$  is the required equilateral triangle with side  $5.3\text{cm}$ .

7

- i) Draw a line segment  $AC$  of length  $6.5\text{cm}$ .
- ii) With  $A$  as centre and radius  $2.5\text{cm}$  draw an arc
- iii) With  $C$  as centre and radius  $6\text{cm}$  draw an arc to cut the

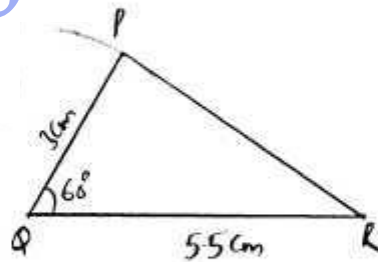
Previous arc at B.

iv) Joint AB and BC, then ABC is the required triangle



$\therefore \angle ABC = 90^\circ$ ; right angled triangle

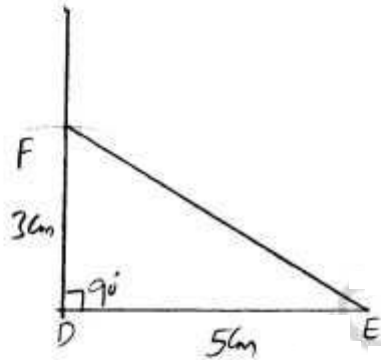
8.



- i) Draw a line segment of length QR 5.5 cm
- ii) With centre Q and radius 3 cm, draw an arc
- iii) At Q, construct  $\angle PQR = 60^\circ$ .

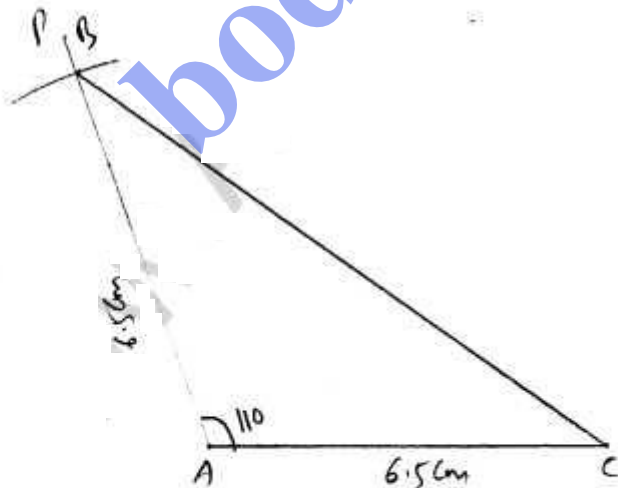
- iv. The point which the arc cut is P. Join P and A.  
 v. Then the required triangle is obtained.

9.



- i) Draw a line segment DE of length 5cm  
 ii) At D, Construct  $\angle EDF = 90^\circ$   
 iii) With D as Centre and radius 3cm, draw an arc to meet at F  
 iv) Join EF, then DEF is the required triangle

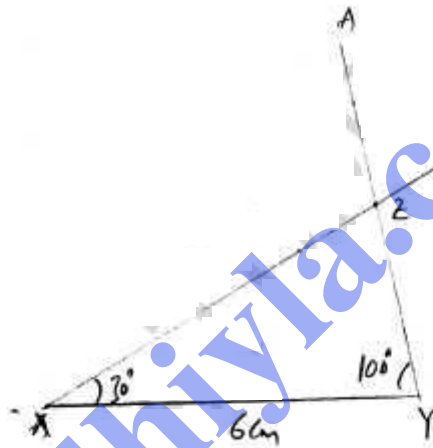
10.



- i) Draw a line segment of length 6.5cm  
 ii) At A, draw  $\angle BAC = 110^\circ$  (by using protractor).

- iii. With A as centre and radius 6.5 cm draw an arc to meet AP at B.
- iv. Join , BC, then ABC is the required isosceles triangle with given measurements. on measuring  $\angle ABC$  and  $\angle BCA$  by protractor we find that
- $\angle ABC = 35^\circ$  and  $\angle BCA = 35^\circ$

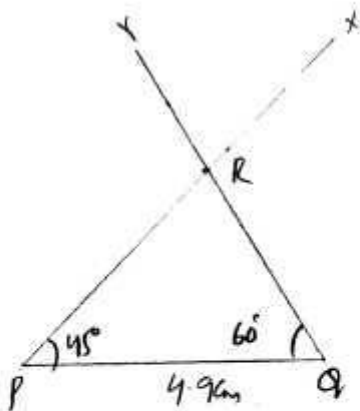
11.



- i) Draw a line segment XY of length 6 cm
- ii) At X, Construct  $\angle X = 30^\circ$ .
- iii) At Y, Construct  $\angle Y = 110^\circ$ .
- iv) Let rays XB and AY intersect at Z, then XYZ is the required Triangle

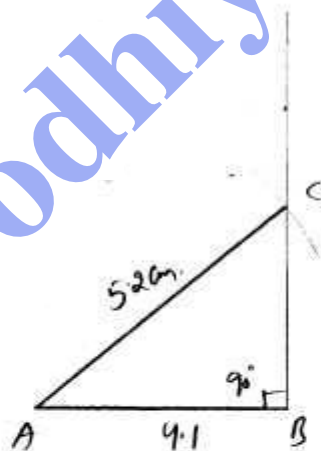


12.



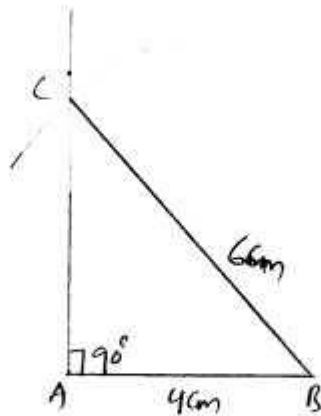
- i) Draw a line segment of PQ length 4.9 cm
- ii) At P, Construct  $\angle P = 45^\circ$
- iii) At Q, Construct  $\angle Q = 60^\circ$
- iv) Let Ray PX and QY intersect at R.  
By measuring  $\angle R = 35^\circ$ .

13.



- i) Draw a line segment of length 4.1 cm = AB
- ii) At B, Construct angle  $90^\circ$  (By using protractor)
- iii) With A as Centre and radius = 5.2 cm. Cut the line with an arc which intersect at C.
- iv) Therefore the required Triangle is obtained.

14.



- i) Draw a line segment of length  $4\text{cm} = AB$
- ii)  $\angle A$ , Construct angle  $90^\circ$  By using Protractor
- iii) Draw an arc with B as centre cut the line at C.
- iv) Join B and C. Thus the required is right-angled triangle.