Practical Geometry

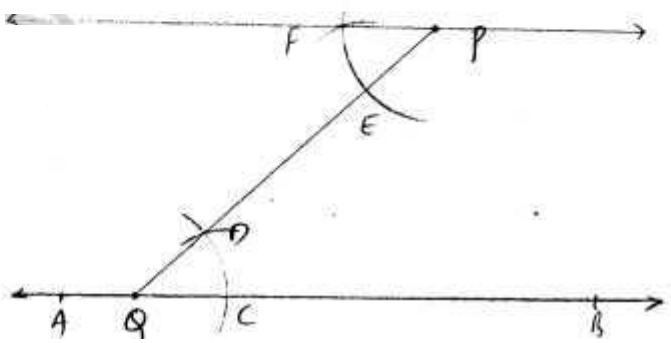
1.

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

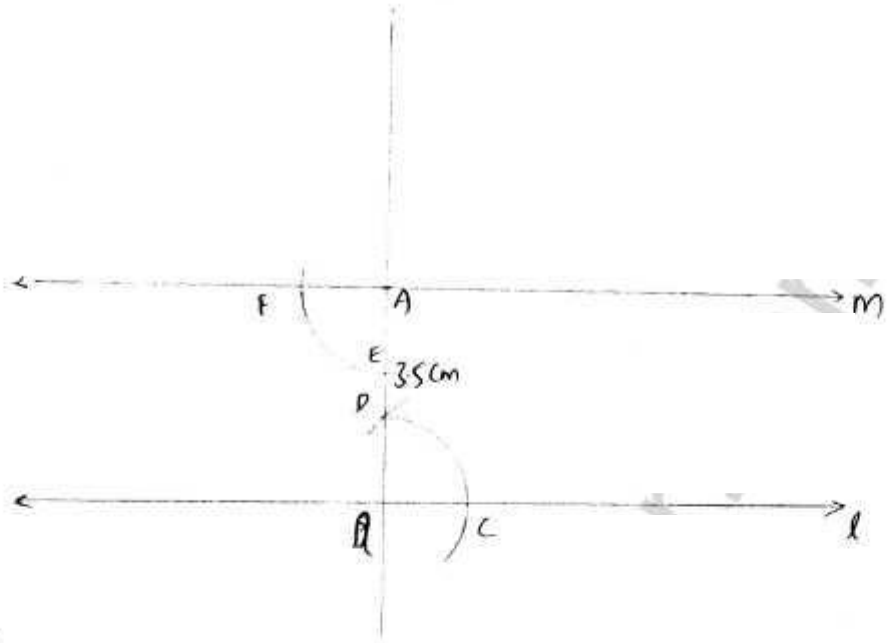
Required. To draw a line parallel to AB and passing through the point P.

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.



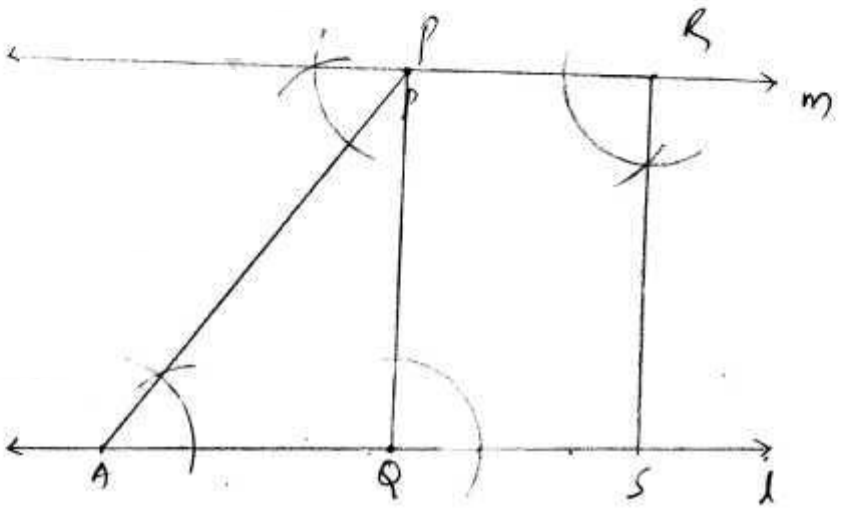
2



Steps:

1. Take any point on line l i.e Q.
2. Take a line perpendicular i.e 90° to line l.
3. Take a point on this perpendicular A above 3.5 cm from line l
4. Repeat the same procedure from step 2 in problem no. 1

3.



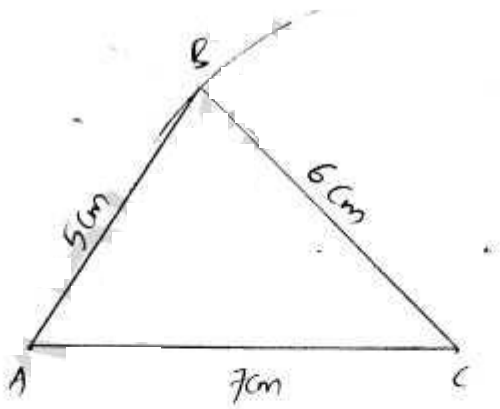
Steps:

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"

4pb

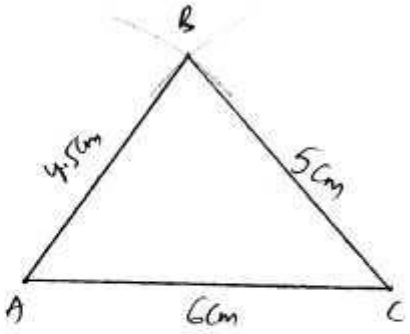
ii)



Steps

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

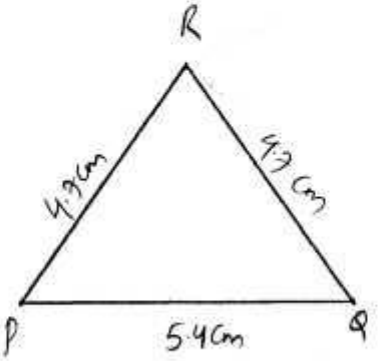
ii)



Steps:

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

5pt



Steps:

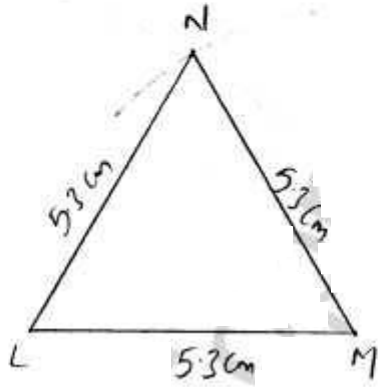
i) Draw a line segment of length PQ = 5.4Cm

ii) With P as centre and radius 4.7cm = PR, draw an arc

iii) With Q as centre and radius = 4.7cm = QR, draw an arc to cut the previous arc at R.

iv) Join PR and QR. Then PQR is required isosceles triangle

6.



i) Draw a line segment LM of length 5.3 cm

ii) With L as centre and radius 5.3 cm, draw an arc

iii) With M as centre and radius 4.5 cm, draw an arc to cut the previous arc at A

iv) Joint LN and MN, then $\triangle LMN$ is the required equilateral triangle with side 5.3 cm.

7

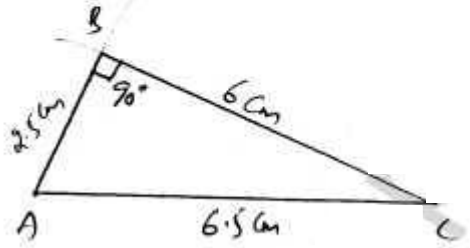
i) Draw a line segment AC of length 6.5 cm.

ii) With A as centre and radius 2.5 cm draw an arc

iii) With C as centre and radius 6 cm draw an arc to cut the

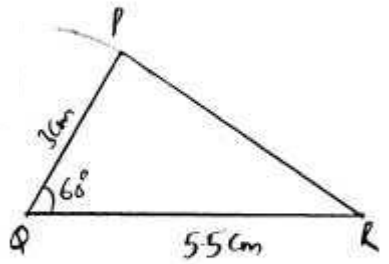
Previous are at B.

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



∴ ∠ABC = 90°; right angled triangle

8.



i) Draw a line segment of length QR 5.5 cm

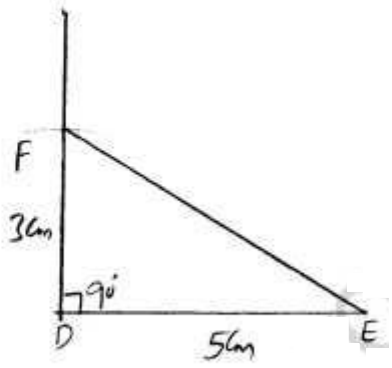
ii) With centre Q and radius 3cm, draw an arc

iii) At Q, construct ∠PQR = 60°

iv. The point which the arc cut is P. Joint P and R.

v. Then the required triangle is obtained.

9.



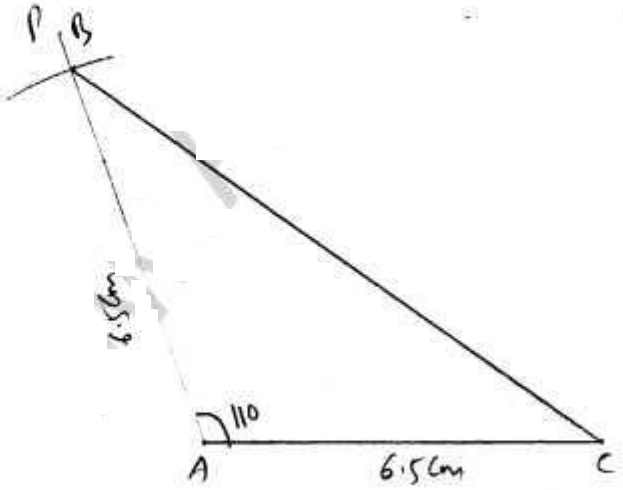
i) Draw a line segment DE of length 5Cm

ii) At D, Construct $\angle EDF = 90°$

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 6.5 Cm

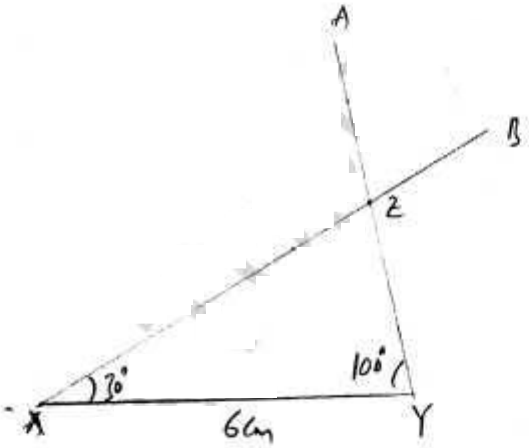
ii) At A, draw $\angle BAC = 110°$ (by Using Protractor).

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 $\angle BCA = 35^\circ$

II.



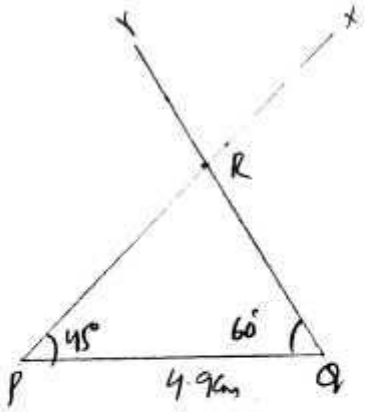
i) Draw a line segment XY of length 6 Cm

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

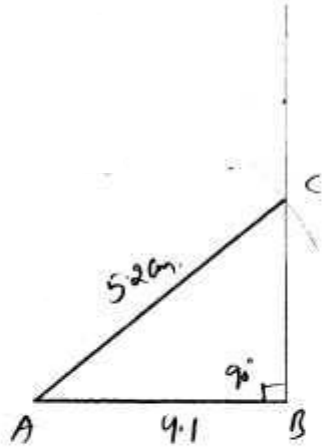
ii) At P, Construct $\angle P = 45°$

iii) At Q, Construct $\angle Q = 60°$

iv) Let Ray PX and QY intersect at R.

By measuring $\angle R = 75°$.

13.



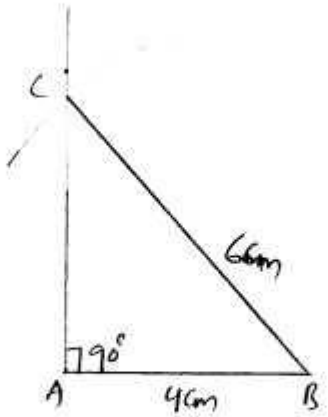
i) Draw a line segment of length 4.1 Cm = AB

ii) $\angle B$, Construct angle 90° (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 ~~reg~~ Triangle is obtained.

14.



i) Draw a line segment of length 4cm = AB

ii) ∠A, Construct angle 90° By using Protractor

iii) Draw an arc with B as Centre Cut the line at C.

iv) Joint B and C. Thus the required is right-angled triangle