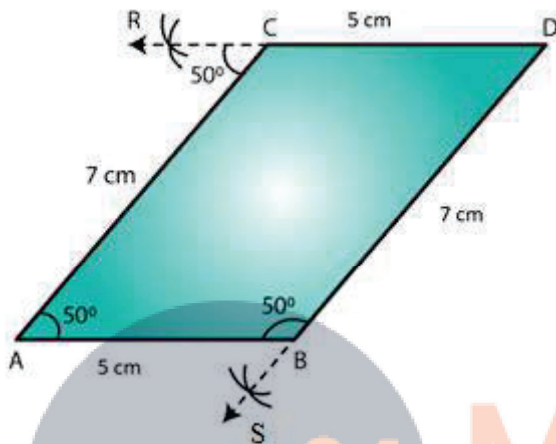


EXERCISE 17.1

PAGE NO: 17.1

1. Draw an $\angle BAC$ of measure 50° such that $AB = 5$ cm and $AC = 7$ cm. Through C draw a line parallel to AB and through B draw a line parallel to AC, intersecting each other at D. Measure BD and CD

Solution:

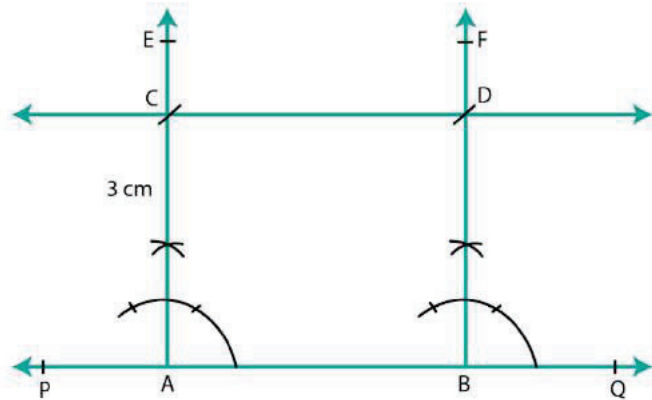


Steps of construction:

1. Draw angle $BAC = 50^\circ$ such that $AB = 5$ cm and $AC = 7$ cm. Cut an arc through C at an angle of 50°
2. Draw a straight line passing through C and the arc. This line will be parallel to AB since $\angle CAB = \angle RCA = 50^\circ$
3. Alternate angles are equal; therefore the line is parallel to AB.
4. Again through B, cut an arc at an angle of 50° and draw a line passing through B and this arc and say this intersects the line drawn parallel to AB at D.
5. $\angle SBA = \angle BAC = 50^\circ$, since they are alternate angles. Therefore BD parallel to AC
6. Also we can measure $BD = 7$ cm and $CD = 5$ cm.

2. Draw a line PQ. Draw another line parallel to PQ at a distance of 3 cm from it.

Solution:

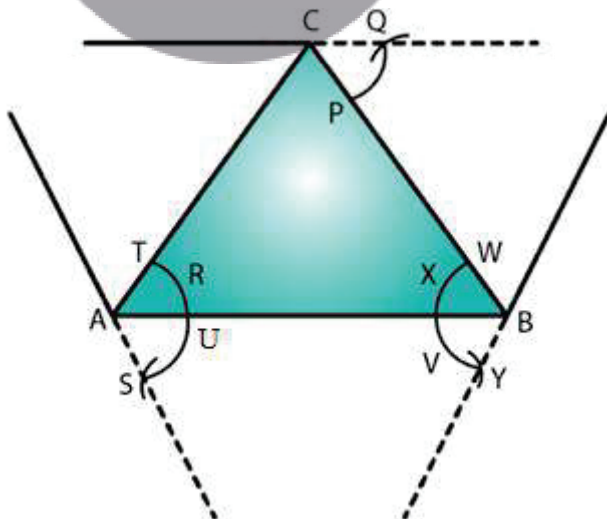


Steps of construction:

1. Draw a line PQ.
2. Take any two points A and B on the line.
3. Construct $\angle PBF = 90^\circ$ and $\angle QAE = 90^\circ$
4. With A as center and radius 3 cm cut AE at C.
5. With B as center and radius 3 cm cut BF at D.
6. Join CD and produce it on either side to get the required line parallel to AB and at a distance of 3 cm from it.

3. Take any three non-collinear points A, B, C and draw $\angle ABC$. Through each vertex of the triangle, draw a line parallel to the opposite side.

Solution:



Steps of construction:

1. Mark three non collinear points A, B and C such that none of them lie on the same line.

- Join AB, BC and CA to form triangle ABC.
- Parallel line to AC
- With A as center, draw an arc cutting AC and AB at T and U, respectively.
- With center B and the same radius as in the previous step, draw an arc on the opposite side of AB to cut AB at X.
- With center X and radius equal to TU, draw an arc cutting the arc drawn in the previous step at Y.
- Join BY and produce in both directions to obtain the line parallel to AC.

Parallel line to AB:

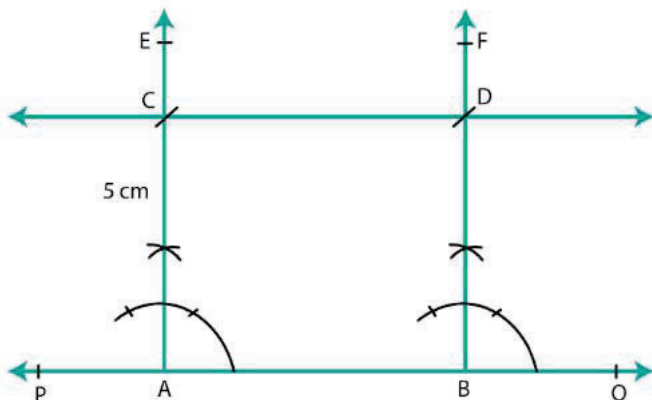
- With B as center, draw an arc cutting BC and BA at W and V, respectively.
- With center C and the same radius as in the previous step, draw an arc on the opposite side of BC to cut BC at P.
- With center P and radius equal to WV, draw an arc cutting the arc drawn in the previous step at Q.
- Join CQ and produce in both directions to obtain the line parallel to AB.

Parallel line to BC:

- With B as center, draw an arc cutting BC and BA at W and V, respectively (already drawn).
- With center A and the same radius as in the previous step, draw an arc on the opposite side of AB to cut AB at R.
- With center R and radius equal to WV, draw an arc cutting the arc drawn in the previous step at S.
- Join AS and produce in both directions to obtain the line parallel to BC.

4. Draw two parallel lines at a distance of 5cm apart.

Solution:



Steps of construction:

1. Draw a line PQ.
2. Take any two points A and B on the line.
3. Construct $\angle PBF = 90^\circ$ and $\angle QAE = 90^\circ$
4. With A as center and radius 5 cm cut AE at C.
5. With B as center and radius 5 cm cut BF at D.
6. Join CD and produce it on either side to get the required line parallel to AB and at a distance of 5 cm from it.



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