Exercise 5.2

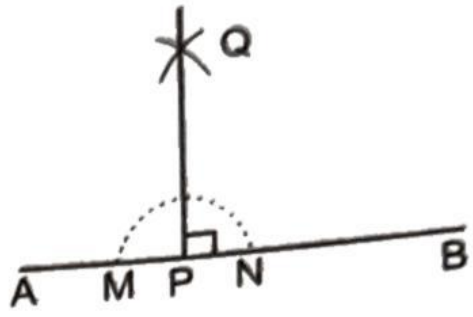
1. Draw a line segment AB = 4.2 cm long, take point P outside it. Draw PM perpendicular from P to AB.

2. Draw a line segment 6.2 cm long. Take two points outside the line on the same side of it. Draw perpendicular from these points to the line segment. Are they parallel? [Ans. Yes]

Construction 3. Draw a perpendicular to a given line segment at a point on it.

Given: A line segment AB and a point P on it.

Required: To draw perpendicular to line segment AB at P.



Teach san ban

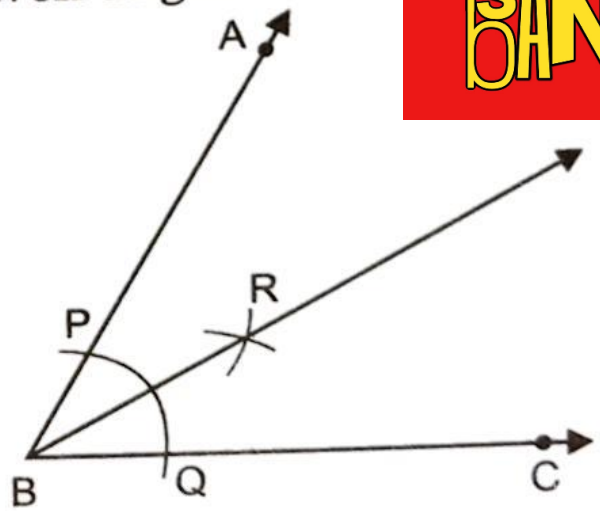
Steps of construction:

1. Draw a given line segment AB.
2. With P as centre and any radius, draw a semicircle intersecting AB at M and N.
3. With M as centre and radius more than 1/2 of MN, draw an arc.
4. With N as centre and the same radius draw another arc to cut the former arc at Q.
5. Join P and Q, then PQ is the required perpendicular to the line segment AB at P.

Construction 4. To construct the bisector of a given angle.

Given: An angle ABC

Required: 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 and BC at P and 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. This ray BR is the required bisector of ∠ABC.