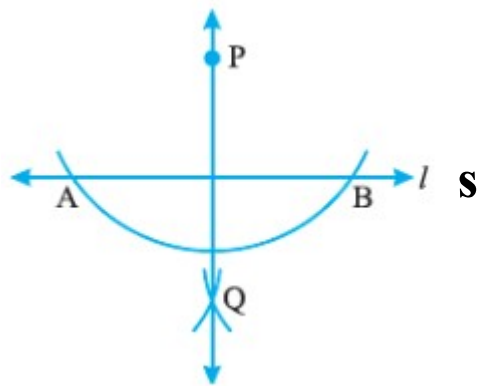# CHAPTER – 14

Practical Geometry

EXERCISE – 14.4

Q. 1

Draw any line segment AB. Mark any point M on it. Through M, draw a perpendicular to $\overline{AB}$. (Use ruler and compasses)
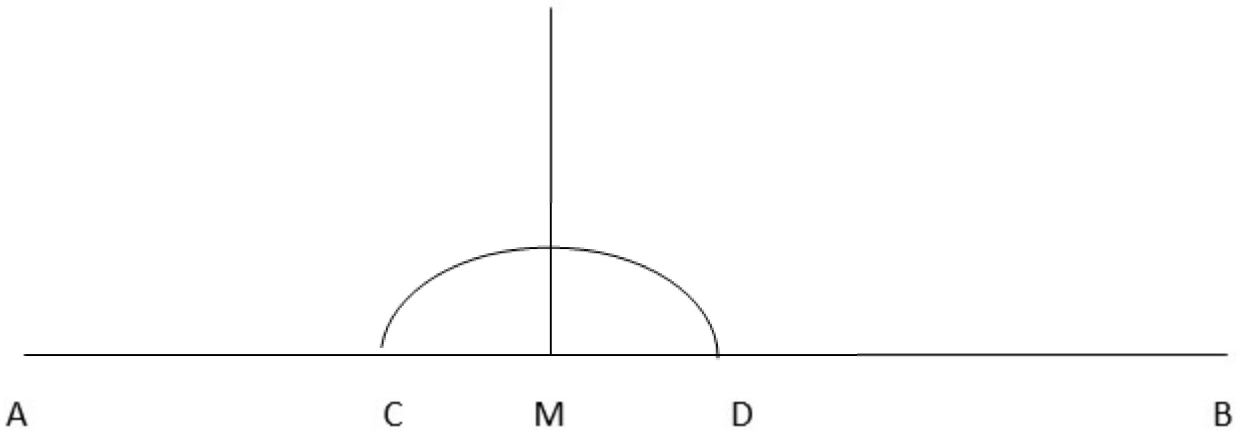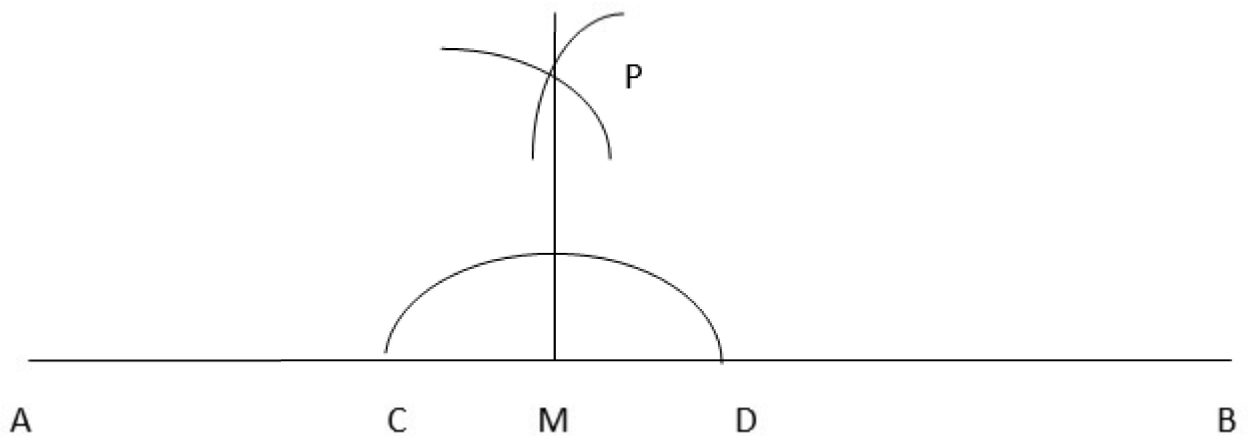

Answer:

Steps of Construction-

1. Draw a line segment AB. Mark a point M on it.

2. With M as centre and a convenient radius, draw an arc intersecting the line AB at two points C and D

A   C   M   D   B

3. With C and D as centres and a radius greater than MC, draw two arcs, which cut each other at P.

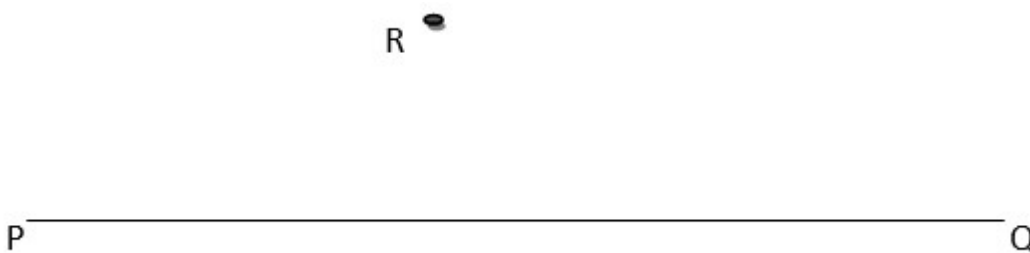4. Join PM. Then PM is perpendicular to AB through the point M.

P

A   C   M   D   B

Q. 2

Draw any line segment PQ. Take any point R not lying on it. Through R, draw a perpendicular to $\overline{PQ}$. (use ruler and set square)

Answer:

Steps of Construction-

1. Draw a line segment PQ. Mark a point R not lying on it.

R

P _____ Q

2. Place a set square on PQ such that one arm of its right angle aligns along PQ.

3. Place a ruler along the edge opposite to the right angle of the set-square.

4. Hold the ruler fixed. Slide the set square along the ruler till the point R touches the other arm of the set square.

5. Join RM along the edge through R meeting PQ at M. Then RM is perpendicular to PQ.

R|

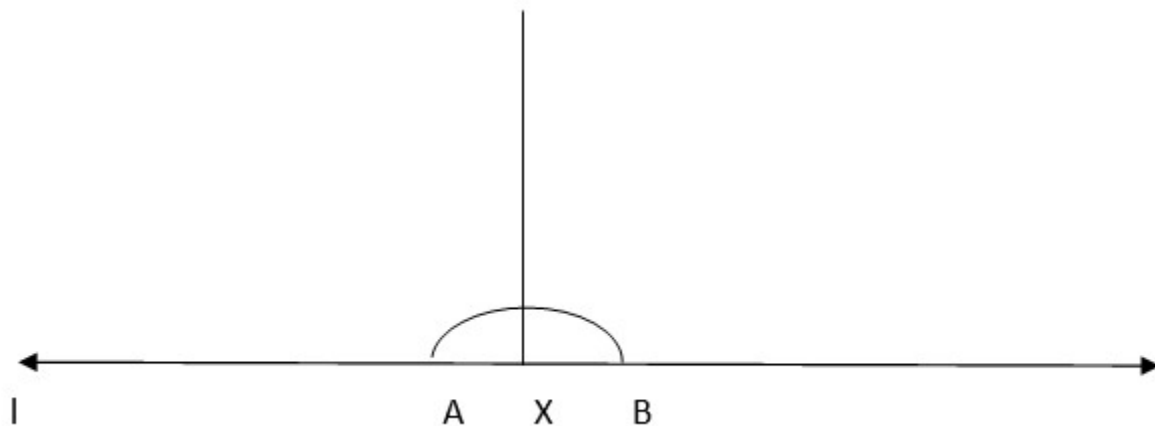P ————————————————————— M ————————————————————— Q
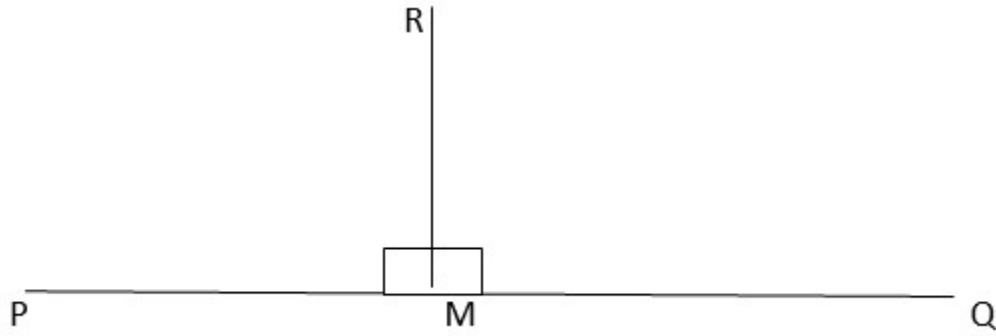
Q. 3

Draw a line l and a point X on it. Through X, draw a line segment XY perpendicular to l.
Now draw a perpendicular to $\overline{XY}$ at Y. (use ruler and compasses)

Answer:

Steps of Construction-

1. Draw a line l and take point X on it.

2. With X as the centre and a convenient radius, draw an arc intersecting the line l at two points A and B.

l ←——————————————————————→
A X B

3. With A and B as centres and a radius greater than XA, draw two arcs, which cut each other at C.

4. Join XC and produce it to Y. Then XY is perpendicular to l.
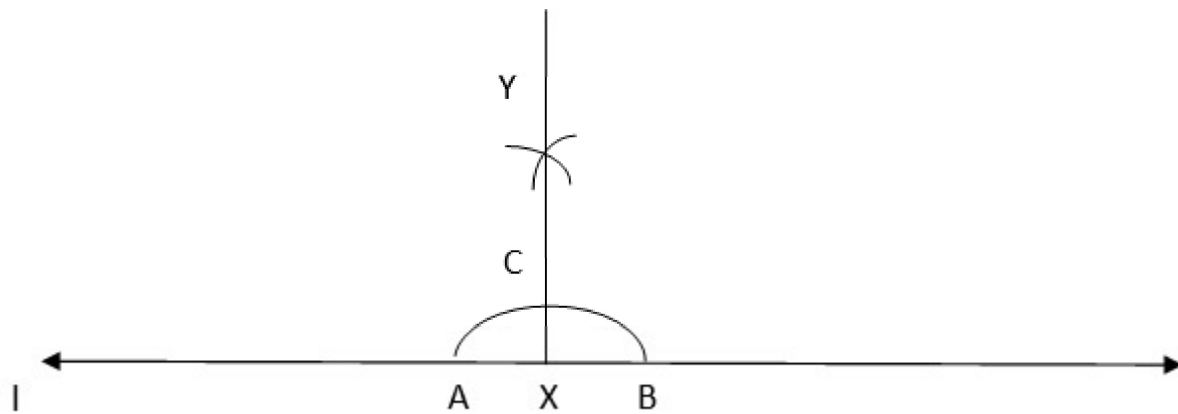
5. With Y as the centre and a convenient radius, draw an arc intersecting XY at two points C and D.

6. With C and D as centres and radius greater than YD, draw two arcs which cut each other at F.

7. Join YF, then YF is perpendicular to XY at Y. The final figure is given below: