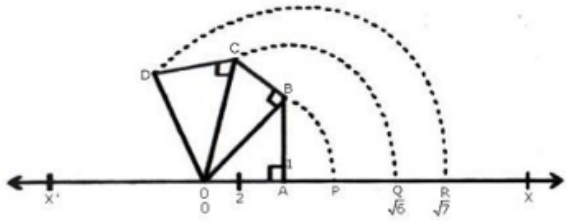
Exercise 1C

Question 4:



Draw horizontal line X'OX taken as the x-axis

Take O as the origin to represent 0.

Let OA = 2 units and let AB ⊥ OA such that AB = 1 units

Join OB. Then,

$OB = \sqrt{OA^2 + AB^2}$

$= \sqrt{2^2 + 1^2} = \sqrt{5}$

With O as centre and OB as radius draw an arc meeting OX at P.

Then, OP = OB = $\sqrt{5}$

Now draw BC ⊥ OB and set off BC = 1 unit

Join OC. Then,

$OC = \sqrt{OB^2 + BC^2}$

$= \sqrt{\left(\sqrt{5}\right)^2 + 1^2} = \sqrt{6}$

With O as centre and OC as radius, draw an arc, meeting OX at Q.

Then, OQ = OC = $\sqrt{6}$

Thus, Q represents $\sqrt{6}$ on the real line.

Now, draw CD ⊥ OC as set off CD = 1 units

Join OD. Then,

$OD = \sqrt{OC^2 + CD^2}$

$= \sqrt{\left(\sqrt{6}\right)^2 + 1^2} = \sqrt{7}$

With O as centre and OD as radius, draw an arc, meeting OX at R. Then

OR = OD = $\sqrt{7}$

Thus, R represents $\sqrt{7}$ on the real line.

********** END **********