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Method to Locate an Irrational number
on the Number line

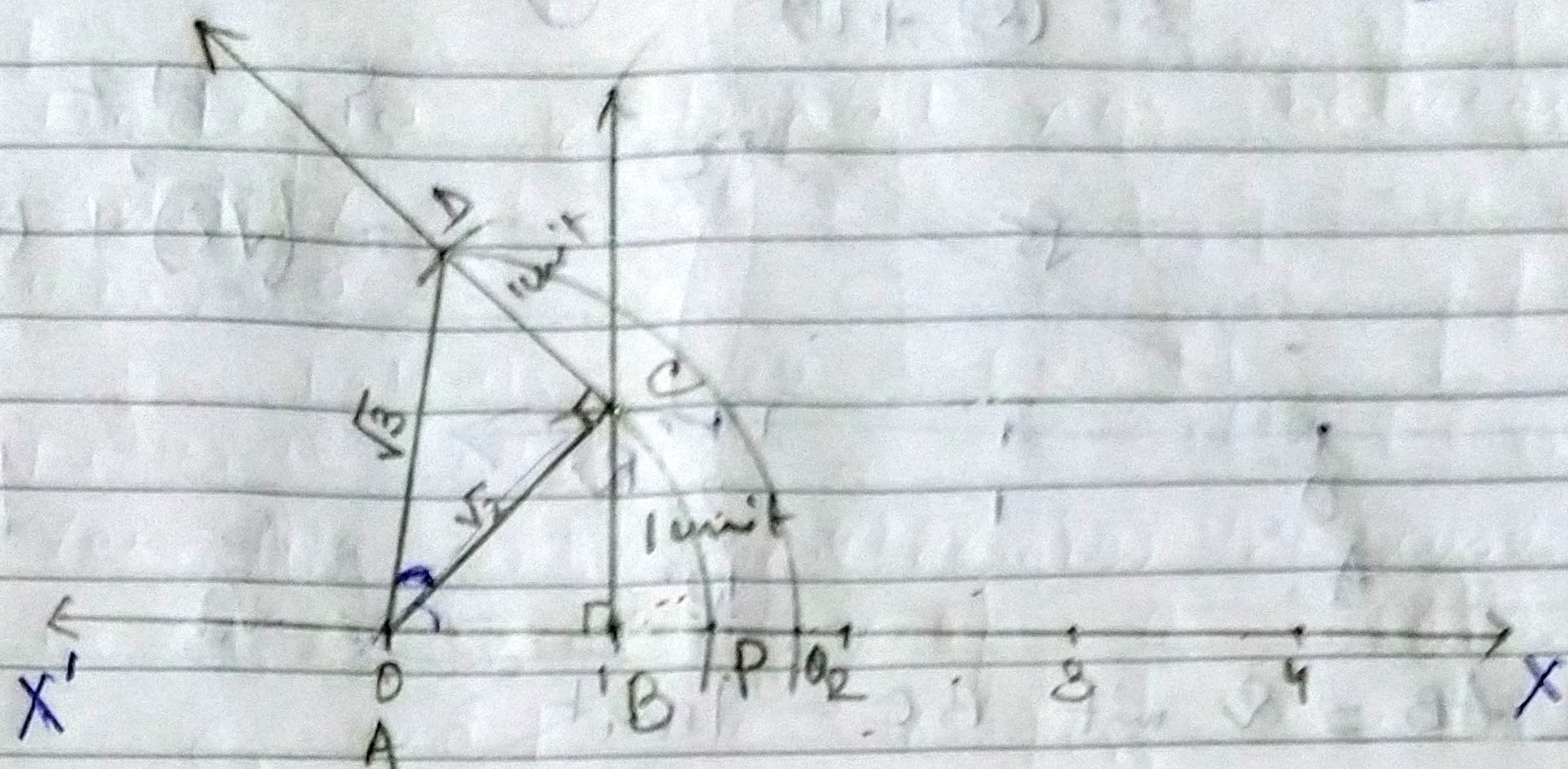
$$\sqrt{4} = 2 = (1)^2 + (1)^2$$

Q1 Locate $\sqrt{2}, \sqrt{3}$ on number line.

Ans

Here $2 = 1 + 1$, $3 = 2 + 1$

$$\therefore 2 = (1)^2 + (1)^2 \quad \therefore 3 = (\sqrt{2})^2 + (1)^2$$



Let $X'X$ be a horizontal line.

$AB = 1 \text{ unit}$, $BC = 1 \text{ unit}$

In $\triangle ABC$, $\angle B = 90^\circ$,

$$AB^2 + BC^2 = AC^2$$

(By Pythagoras property)

$$\Rightarrow (1)^2 + (1)^2 = AC^2$$

$$\Rightarrow 1 + 1 = AC^2$$

$$\Rightarrow 2 = AC^2$$

$$\Rightarrow (\sqrt{2})^2 = (AC)^2$$

$$\Rightarrow \sqrt{2} = AC$$

$$\therefore AC = AP = \sqrt{2} \text{ unit}$$

$\therefore AP$ is $\sqrt{2}$ unit

Similarly

$$AC^2 + CD^2 = AD^2$$

$$\Rightarrow (\sqrt{2})^2 + (1)^2 = AD^2$$

$$\Rightarrow 2 + 1 = AD^2$$

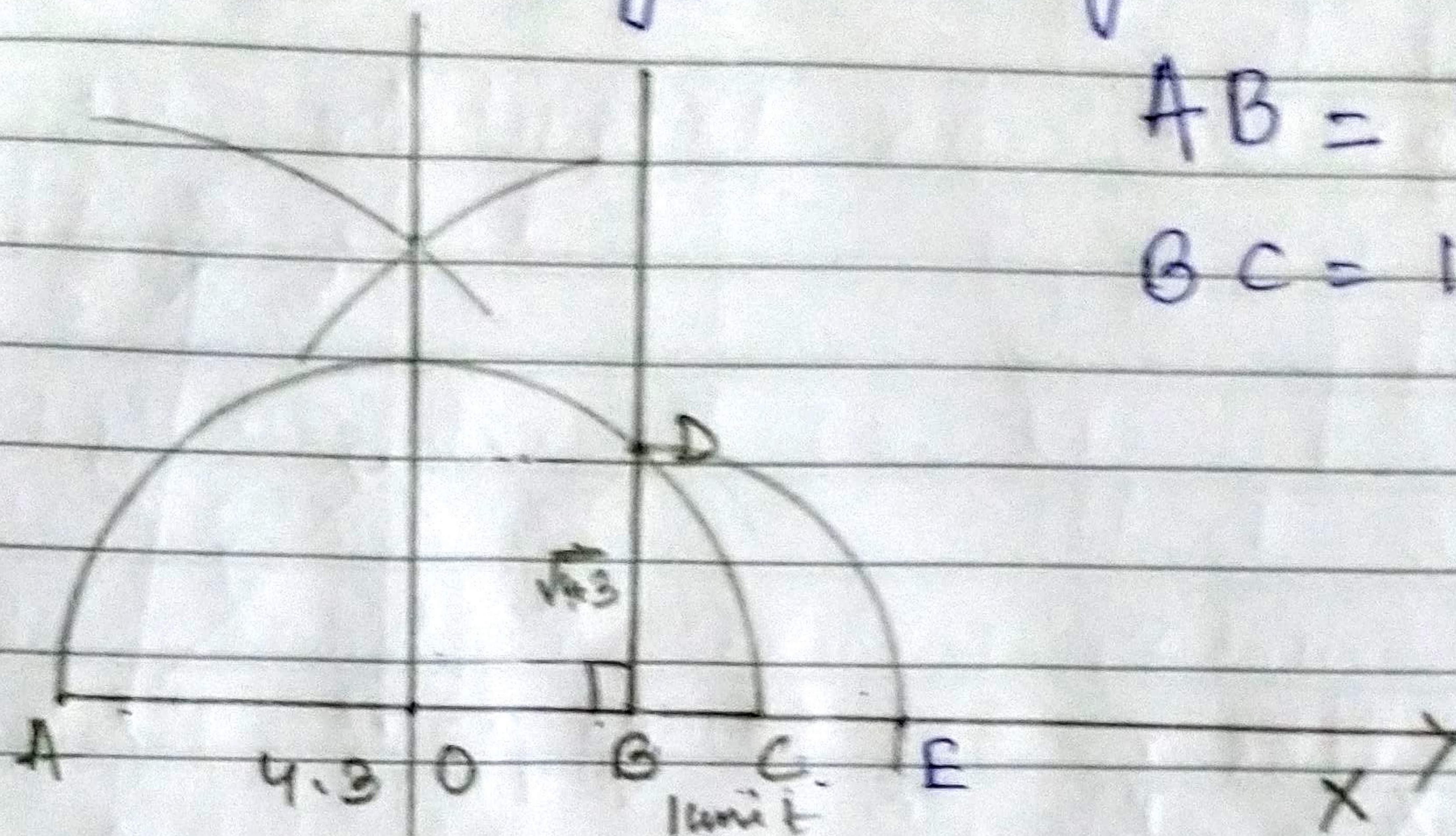
$$\Rightarrow 3 = AD^2$$

$$\Rightarrow (\sqrt{3})^2 = AD^2$$

$$\Rightarrow \sqrt{3} = AD$$

$$AD = AQ = \sqrt{3} \text{ unit}$$

Q) Represent $\sqrt{4.3}$ geometrically.



$$AB = 4.3 \text{ unit}$$

$$BC = 1 \text{ unit}$$

$$AE = 5.3 \text{ unit}$$

$$BE = 1 \text{ unit}$$

AX be the horizontal line

$$AB = 4.3 \text{ unit}$$

$$BC = 1 \text{ unit}$$

$$AC = 5.3 \text{ unit}$$

$$BD = \sqrt{4.3}$$

$$\therefore BD = BE = \sqrt{4.3} \text{ units}$$

O is the mid point of AC
with AO as radius we draw the
semicircle.