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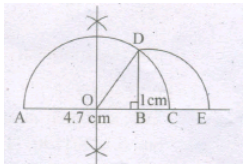
Answers Key:

5 Marks

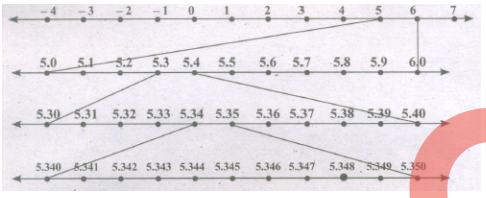
1. Represent $\sqrt{4.7}$ on a number line.

Steps of construction:

1. Draw a line and mark a point A and B such that AB = 4.7 cm.
2. Mark a point C on this line such that BC = 1 cm.
3. Find the mid point of AC by drawing perpendicular bisector of AC and let it be "O".
4. With O as centre and OC = OA as radius draw a semicircle.
5. Draw a line BD, which is perpendicular to AB at B.
6. Now BD = $\sqrt{4.7}$, which can be marked in the number line as the value of BE = BD = $\sqrt{4.7}$.



2. (i) 5.348 lies between 5 and 6.



Steps of construction:

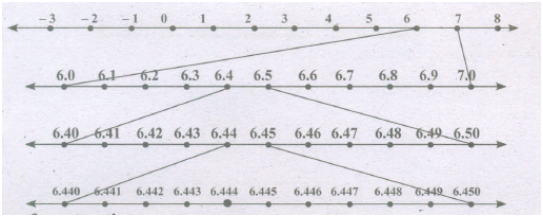
1. Divide the distance between 5 and 6 into 10 equal intervals.
2. Mark the point 5.3 which is the sixth from the left of 6 and 3 from the right of 5.
3. 5.34 lies between 5.3 and 5.4. Divide the distance into 10 equal intervals.
4. Mark the point 5.34 which is sixth from the left of 5.40
5. 5.348 lies between 5.34 and 5.35. Divide the distance into 10 equal intervals.
6. Mark a point 5.348 which is second from the left of 5.350 and seventh form the right of 5.340.

(ii) $6.\overline{4}$ upto 3 decimal places.

$6.\overline{4}$ = 6.4444 .....

$6.\overline{4}$ = 6.444 (correct to 3 decimal places)

The number lies between 6 and 7.

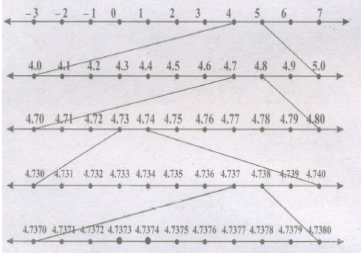


Steps of construction:

1. Divide the distance between 6 and 7 into 10 equal intervals.
2. Mark the point 6.4 which is the sixth from the left of 7 and fourth from the right of 6.
3. 6.44 lies between 6.44 and 6.45. Divide the distance into 10 equal intervals.
4. Mark the point 6.44 which is sixth from the left of 6.5 and fourth from the right of 6.40.
5. Mark the point 6.444 which is sixth from the left of 6.450 and fourth from the right of 6.440.

(iii) $4.\overline{73}$ = 4.737373 .....

= 4.737374 (correct to 4 decimal places 4.7374 lies between 4 and 4)



Steps of construction:

1. Divide the distance between 4 and 5 into 10 equal parts.
2. Mark the point 4.7 which is third from the left of 5 and seventh from the right of 4.
3. 4.73 lies between 4.7 and 4.8. Divide the distance into 10 equal intervals.
4. Mark the point 4.73 which is seventh from the left of 4.80 and third from the left of 4.70.
5. 4.737 lies between 4.73 and 4.74. Divide the distance into 10 equal intervals.
6. Mark the point 4.737 which is third from the left of 4.740 and seventh from the right of 4.730.
7. 4.7374 lies between 4.737 and 4.738. Divide the distance into 10 equal intervals.
8. Mark the point 4.7374 which is sixth from the left of 4.7380 and fourth from the right of 4.7370.

3. $\sqrt[3]{5}, \sqrt[9]{4}, \sqrt[6]{3}$

$5^{\frac{1}{9}}$

∴ The order of the surds $\sqrt[3]{5}, \sqrt[9]{4}, \sqrt[6]{3}$ are 3,9,6

$4^{\frac{1}{9}}$

$3^{\frac{1}{6}}$ l.c.m of 3,9,6 is 18

∴ $\frac{1}{3} = \frac{1\times6}{3\times6} = \frac{6}{18}$

$\frac{1}{9} = \frac{1\times2}{9\times2} = \frac{2}{18}$; $\frac{1}{6} = \frac{1\times3}{6\times3} = \frac{3}{18}$

$(5^{\frac{1}{9}}) = 5^{\frac{6}{18}} = (15625)^{\frac{1}{18}}$

$(4^{\frac{1}{9}}) = 4^{\frac{2}{18}} = (4^2)^{\frac{1}{18}} = 16^{\frac{1}{18}}$

$(3^{\frac{1}{6}}) = 3^{\frac{3}{18}} = (3^3)^{\frac{1}{18}} = 27^{\frac{1}{18}}$

∴ The descending order of $\sqrt[3]{5}, \sqrt[9]{4}, \sqrt[6]{3}$ is $(15625)^{\frac{1}{18}} > (27)^{\frac{1}{18}} > 16^{\frac{1}{18}}$ i.e., $\sqrt{\sqrt{3}} > \sqrt[2]{\sqrt[3]{5}} > \sqrt[3]{\sqrt[4]{7}}$

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