

## EXERCISE 1.4

1. Visualise 3.765 on the number line, using successive magnification.
2. Visualise  $4.\overline{26}$  on the number line, up to 4 decimal places.



## EXERCISE 1.5

1. Classify the following numbers as rational or irrational:

(i)  $2 - \sqrt{5}$   $\mathbb{I}$

(ii)  $(3 + \sqrt{23}) - \sqrt{23}$   $\mathbb{Q}$

(iii)  $\frac{2\sqrt{7}}{7\sqrt{7}}$   $\mathbb{Q}$

(iv)  $\frac{1}{\sqrt{2}}$   $\mathbb{I}$

(v)  $2\pi$   $\mathbb{I}$

2. Simplify each of the following expressions:

(i)  $(3 + \sqrt{3})(2 + \sqrt{2})$

(ii)  $(3 + \sqrt{3})(3 - \sqrt{3})$

(iii)  $(\sqrt{5} + \sqrt{2})^2$

(iv)  $(\sqrt{5} - \sqrt{2})(\sqrt{5} + \sqrt{2})$

3. Recall,  $\pi$  is defined as the ratio of the circumference (say  $c$ ) of a circle to its diameter (say  $d$ ). That is,  $\pi = \frac{c}{d}$ . This seems to contradict the fact that  $\pi$  is irrational. How will you resolve this contradiction?

4. Represent  $\sqrt{9.3}$  on the number line.

5. Rationalise the denominators of the following:

(i)  $\frac{1}{\sqrt{7}}$

(ii)  $\frac{1}{\sqrt{7} - \sqrt{6}}$

(iii)  $\frac{1}{\sqrt{5} + \sqrt{2}}$

(iv)  $\frac{1}{\sqrt{7} - 2}$