

Exercise 1E

## Question 1:

On multiplying the numerator and denominator of the given number by  $\sqrt{7}$ , we get

$$\frac{1}{\sqrt{7}} = \frac{1}{\sqrt{7}} \times \frac{\sqrt{7}}{\sqrt{7}} = \frac{\sqrt{7}}{7}.$$

## Question 2:

On multiplying the numerator and denominator of the given number by  $\sqrt{3}$ , we get

$$\frac{\sqrt{5}}{2\sqrt{3}} = \frac{\sqrt{5}}{2\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{15}}{2 \times 3} = \frac{\sqrt{15}}{6}.$$

## Question 3:

If a and b are integers, then

 $(a+\sqrt{b})$  and  $(a-\sqrt{b})$  are rationalising factor of each other, as  $(a+\sqrt{b})(a-\sqrt{b}) = (a^2-b)$ , which is rational.

Therefore, we have, 
$$\frac{1}{(2+\sqrt{3})} = \frac{1}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}} = \frac{2-\sqrt{3}}{(2)^2-(\sqrt{3})^2} = \frac{2-\sqrt{3}}{4-3}$$
$$= \frac{2-\sqrt{3}}{1} = 2-\sqrt{3}.$$

## Question 4:

If a and b are integers, then

 $(a+\sqrt{b})$  and  $(a-\sqrt{b})$  are rationalising factor of each other, as  $(a+\sqrt{b})(a-\sqrt{b}) = (a^2-b)$ , which is rational.

Therefore, we have, 
$$\frac{1}{(\sqrt{5}-2)} = \frac{1}{\sqrt{5}-2} \times \frac{\sqrt{5}+2}{\sqrt{5}+2} = \frac{\sqrt{5}+2}{(\sqrt{5})^2 - (2)^2} = \frac{\sqrt{5}+2}{5-4}$$
$$= \frac{\sqrt{5}+2}{1} = \sqrt{5}+2.$$

\*\*\*\*\*\*\* END \*\*\*\*\*\*\*