



Exercise 1D

Question 3:

(i)  $16\sqrt{6}$  by  $4\sqrt{2}$

$$\begin{aligned} 16\sqrt{6} \div 4\sqrt{2} &= \frac{16\sqrt{6}}{4\sqrt{2}} = \frac{4\sqrt{6}}{\sqrt{2}} = \frac{4\sqrt{6} \times \sqrt{2}}{\sqrt{2} \times \sqrt{2}} \\ &= \frac{4\sqrt{6 \times 2}}{2} = \frac{4\sqrt{2 \times 3 \times 2}}{2} \\ &= \frac{4 \times 2\sqrt{3}}{2} = 4\sqrt{3} \end{aligned}$$

(ii)  $12\sqrt{15}$  by  $4\sqrt{3}$

$$\begin{aligned} 12\sqrt{15} \div 4\sqrt{3} &= \frac{12\sqrt{15}}{4\sqrt{3}} = \frac{3\sqrt{15}}{\sqrt{3}} = \frac{3\sqrt{15} \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}} \\ &= \frac{3\sqrt{15 \times 3}}{3} = \sqrt{3 \times 5 \times 3} = 3\sqrt{5} \end{aligned}$$

(iii)  $18\sqrt{21}$  by  $6\sqrt{7}$

$$\begin{aligned} 18\sqrt{21} \div 6\sqrt{7} &= \frac{18\sqrt{21}}{6\sqrt{7}} = \frac{3\sqrt{21}}{\sqrt{7}} = \frac{3\sqrt{21} \times \sqrt{7}}{\sqrt{7} \times \sqrt{7}} \\ &= \frac{3\sqrt{3 \times 7 \times 7}}{7} = \frac{3 \times 7 \sqrt{3}}{7} = 3\sqrt{3} \end{aligned}$$

Question 4:

$$(i) (4 + \sqrt{2})(4 - \sqrt{2})$$

$$= (4)^2 - (\sqrt{2})^2 \quad \left[ \because a^2 - b^2 = (a - b)(a + b) \right]$$

$$= 16 - 2 = 14$$

$$(ii) (\sqrt{5} + \sqrt{3})(\sqrt{5} - \sqrt{3})$$

$$(\sqrt{5})^2 - (\sqrt{3})^2 \quad \left[ \because a^2 - b^2 = (a - b)(a + b) \right]$$

$$= 5 - 3 = 2.$$

$$(iii) (6 - \sqrt{6})(6 + \sqrt{6})$$

$$= (6)^2 - (\sqrt{6})^2 \quad \left[ \because a^2 - b^2 = (a - b)(a + b) \right]$$

$$= 36 - 6 = 30.$$

$$(iv) (\sqrt{5} - \sqrt{2})(\sqrt{2} - \sqrt{3})$$

$$= \sqrt{5}(\sqrt{2} - \sqrt{3}) - \sqrt{2}(\sqrt{2} - \sqrt{3})$$

$$= (\sqrt{10} - \sqrt{15} - 2 + \sqrt{6}).$$

$$(v) (\sqrt{5} - \sqrt{3})^2$$

$$= (\sqrt{5})^2 + (\sqrt{3})^2 - 2\sqrt{5}\sqrt{3}$$

$$= 5 + 3 - 2\sqrt{15}$$

$$= 8 - 2\sqrt{15}$$

$$(vi) (3 - \sqrt{3})^2$$

$$= (3)^2 + (\sqrt{3})^2 - 2.3.\sqrt{3}$$

$$= 9 + 3 - 6\sqrt{3}$$

$$= 12 - 6\sqrt{3}$$

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