

Ex - 1.6

Q1. Find : (i) $(64)^{1/2}$ (ii) $32^{1/5}$ (iii) $125^{1/3}$

Sol. (i) $(64)^{1/2} = (8^2)^{1/2} = (8^{2 \times \frac{1}{2}}) = 8^1 = 8$

(ii) $32^{1/5} = (2^5)^{1/5} = (2^{5 \times \frac{1}{5}}) = 2^1 = 2$

(iii) $(125)^{1/3} = (5^3)^{1/3} = 5^{3 \times \frac{1}{3}} = 5$

Q2. Find : (i) $9^{3/2}$ (ii) $32^{2/5}$ (iii) $16^{3/4}$ (iv) $125^{1/3}$

Sol. (i) $9^{3/2} = (9^{1/2})^3 = (3)^3 = 27$

(ii) $32^{2/5} = (2^5)^{2/5} = 2^{5 \times \frac{2}{5}} = 2^2 = 4$

(iii) $16^{3/4} = (2^4)^{3/4} = 2^3 = 8$

(iv) $125^{1/3} = (5^3)^{1/3} = 5$

Q3. Simplify : (i) $2^{2/3} \cdot 2^{1/5}$ (ii) $\left(\frac{1}{3^3}\right)^7$ (iii) $\frac{11^{1/2}}{11^{1/4}}$ (iv) $7^{1/2} \cdot 8^{1/2}$

Sol. (i) $2^{2/3} \cdot 2^{1/5} = 2^{\frac{2}{3} + \frac{1}{5}} = 2^{\frac{10+3}{15}} = 2^{\frac{13}{15}}$

(ii) $\left(\frac{1}{3^3}\right)^7 = \frac{1^7}{(3^3)^7} = \frac{1}{3^{21}} = 3^{-21}$

(iii) $\frac{11^{1/2}}{11^{1/4}} = 11^{\frac{1}{2} - \frac{1}{4}}$

$= 11^{1/4} = \sqrt[4]{11}$

(iv) $7^{1/2} \cdot 8^{1/2}$

$= (7 \times 8)^{1/2} = (56)^{1/2}$