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1. Find:
(i)$64^{1/2}$
Solution:
$64^{1/2} = (8 \times 8)^{1/2}$
$= (8^2)^{½}$
$= 8^1$ $(2 \times 1/2 = 2/2 = 1)$
$= 8$

(ii)$32^{1/5}$
Solution:
$32^{1/5} = (2^5)^{1/5}$
$= (2^5)^{⅕}$
$= 2^1$ $[5 \times 1/5 = 1]$
$= 2$

(iii)$125^{1/3}$
Solution:
$(125)^{1/3} = (5 \times 5 \times 5)^{1/3}$
$= (5^3)^{⅓}$
$= 5^1$ $(3 \times 1/3 = 3/3 = 1)$
$= 5$

2. Find:
(i)$9^{3/2}$
Solution:
$9^{3/2} = (3 \times 3)^{3/2}$
$= (3^2)^{3/2}$
$= 3^3$ $[2 \times 3/2 = 3]$
$=27$

(ii)$32^{2/5}$
Solution:
$32^{2/5} = (2 \times 2 \times 2 \times 2 \times 2)^{2/5}$
$= (2^5)^{2/5}$
$= 2^2$ $[5 \times 2/5 = 2]$
$= 4$

(iii)$16^{3/4}$
Solution:
$16^{3/4} = (2 \times 2 \times 2 \times 2)^{3/4}$
$= (2^4)^{3/4}$
$= 2^3$ $[4 \times 3/4 = 3]$

= 8

(iv) 125$^{-1/3}$

125$^{-1/3}$ = (5×5×5)$^{-1/3}$
= (5^3)$^{-1/3}$
= 5^{-1} [3×-1/3 = -1]
= 1/5

3. Simplify:
(i) 2$^{2/3}$×2$^{1/5}$
Solution:
2$^{2/3}$×2$^{1/5}$ = 2$^{(2/3)+(1/5)}$ [Since, a^m×a^n=a^{m+n}____ Laws of exponents]
      = 2$^{13/15}$ [2/3 + 1/5 = (2×5+3×1)/(3×5) = 13/15]

(ii) (1/3^3)^7
Solution:
(1/3^3)^7 = (3^{-3})^7 [Since,(a^m)^n = a$^{m \times n}$____ Laws of exponents]
      = 3^{-27}

(iii) 11$^{1/2}$/11$^{1/4}$
Solution:
11$^{1/2}$/11$^{1/4}$ = 11$^{(1/2)-(1/4)}$
           = 11$^{1/4}$ [(1/2) - (1/4) = (1×4-2×1)/(2×4) = 4-2)/8 = 2/8 = ¼]

(iv) 7$^{1/2}$×8$^{1/2}$
Solution:

7$^{1/2}$×8$^{1/2}$ = (7×8)$^{1/2}$ [Since, (a^m×b^m = (a×b)^m ____ Laws of exponents
        = 56$^{1/2}$