

Mathematics

(www.tiwariacademy.net)

(Chapter – 1) (Number Systems)(Exemplar Problems)

(Class – IX)

Exercise 1.4

Question 6:

Simplify: $(256)^{-\left(4^{-\frac{-3}{2}}\right)}$

Answer 6:

Given that: $(256)^{-\left(4^{-\frac{-3}{2}}\right)}$

$$= (256)^{-\left(\left\{\frac{1}{4}\right\}^{\frac{3}{2}}\right)}$$

$$= (256)^{-\left(\left\{\frac{1}{2}\right\}^{2 \times \frac{3}{2}}\right)}$$

$$= (256)^{-\left(\left\{\frac{1}{2}\right\}^3\right)}$$

$$= (256)^{-\left(\frac{1}{8}\right)}$$

$$= (2^8)^{-\left(\frac{1}{8}\right)}$$

$$= 2^{8 \times -\frac{1}{8}}$$

$$= 2^{-1} = \frac{1}{2}$$

