



Powers Ex 2.2 Q13

**Answer :**

(i) First, we have to find  $x$ .

$$\begin{aligned}x &= \left(\frac{3}{2}\right)^2 \times \left(\frac{2}{3}\right)^{-4} & \text{---}>(a^{-1} = 1/a) \\&= \left(\frac{3}{2}\right)^2 \times \left(\frac{3}{2}\right)^4 \\&= \left(\frac{3}{2}\right)^6\end{aligned}$$

Hence,  $x^{-2}$  is:

$$\begin{aligned}x^{-2} &= \left(\left(\frac{3}{2}\right)^6\right)^{-2} & \text{---}>(a^{-1} = 1/a) \\&= \left(\frac{3}{2}\right)^{-12} \\&= \left(\frac{2}{3}\right)^{12}\end{aligned}$$

(ii) First, we have to find  $x$ .

$$\begin{aligned}x &= \left(\frac{4}{5}\right)^{-2} \div \left(\frac{1}{4}\right)^2 \quad \rightarrow ((a/b)^n = (a^n)/(b^n)) \\&= \left(\frac{4^{-2}}{5^{-2}}\right) \times 4^2 \\&= \frac{4^0}{5^{-2}} \\&= \frac{1}{5^{-2}} \quad \rightarrow (a^0 = 1)\end{aligned}$$

Hence, the value of  $x^{-1}$  is:

$$\begin{aligned}x^{-1} &= \left(\frac{1}{5^{-2}}\right)^{-1} \\&= (5^2)^{-1} \quad \rightarrow (a^{-1} = 1/a) \\&= \frac{1}{5^2} \quad \rightarrow (a^{-1} = 1/a)\end{aligned}$$

Powers Ex 2.2 Q14

**Answer :**

We have:

$$\begin{aligned}5^{2x} \div 5^{-3} &= 5^5 \\5^{2x+3} &= 5^5 \quad \rightarrow a^m \div a^n = a^{m-n} \\2x + 3 &= 5 \\2x &= 2 \\x &= 1\end{aligned}$$

Hence,  $x$  is 1.

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