Powers Ex 2.2 Q13

Answer :

(i) First, we have to find x.

$$x = \left(\frac{3}{2}\right)^2 \times \left(\frac{2}{3}\right)^{-4} \qquad \text{--->}(a^{-1} = 1/a)$$

$$= \left(\frac{3}{2}\right)^2 \times \left(\frac{3}{2}\right)^4$$

$$= \left(\frac{3}{2}\right)^6$$

Hence, x^{-2} is:

$$x^{-2} = \left(\left(\frac{3}{2}\right)^6\right)^{-2} \qquad \text{--->}(a^{-1} = 1/a)$$

$$= \left(\frac{3}{2}\right)^{-12}$$

$$= \left(\frac{2}{3}\right)^{12}$$

(ii) First, we have to find x.

$$x = \left(\frac{4}{5}\right)^{-2} \div \left(\frac{1}{4}\right)^{2} \quad \text{---> } ((a/b)^n = (a^n)/(b^n))$$

$$= \left(\frac{4^{-2}}{5^{-2}}\right) \times 4^2$$

$$= \frac{4^0}{5^{-2}}$$

$$= \frac{1}{5^{-2}} \quad \text{---> } (a^0 = 1)$$

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

$$x^{-1} = \left(\frac{1}{5^{-2}}\right)^{-1}$$

$$= \left(5^2\right)^{-1} \quad \text{--->} (a^{-1} = 1/a)$$

$$= \frac{1}{5^2} \quad \text{--->} (a^{-1} = 1/a)$$

Powers Ex 2.2 Q14

Answer :

We have:

$$5^{2x} \div 5^{-3} = 5^5$$
$$5^{2x+3} = 5^5 \quad \text{---> } a^m \div a^n = a^{m-n}$$
$$2x + 3 = 5$$
$$2x = 2$$
$$x = 1$$

Hence, x is 1.

********** END *********