Powers Ex 2.1 Q3

Answer:

(i)

$$\left(\frac{1}{2}\right)^{-1} + \left(\frac{1}{3}\right)^{-1} + \left(\frac{1}{4}\right)^{-1} = \frac{1}{1/2} + \frac{1}{1/3} + \frac{1}{1/4} \qquad \longrightarrow (a^{-1} = 1/a)$$

$$=2+3+4$$
$$=12$$

(ii)

$$\left(\frac{1}{2}\right)^{-2} + \left(\frac{1}{3}\right)^{-2} + 14 - 2 = 11/22 + 11/32 + 11/42 \qquad \longrightarrow (a^{-n} = 1/(a^n))$$

$$= \frac{1}{1/4} + \frac{1}{1/9} + \frac{1}{1/16} \qquad \longrightarrow ((a/b)^n = (a^n/b^n))$$

$$= 4+9+16$$
$$=29$$

(iii)

$$\left(2^{-1} \times 4^{-1}\right) \div 2^{-2} = \left(\frac{1}{2} \times \frac{1}{4}\right) \div \frac{1}{2^2} \qquad \longrightarrow (a^{-n} = 1/(a^n))$$

$$= \frac{1}{8} \times 4$$
$$= 2$$

(iv)

$$\left(5^{-1} \times 2^{-1}\right) \div 6^{-1} = \left(\frac{1}{5} \times \frac{1}{2}\right) \div \frac{1}{6} \qquad \longrightarrow (a^{-n} = 1/(a^n))$$

$$= \frac{1}{10} \times 6$$

$$= \frac{3}{5}$$

Powers Ex 2.1 Q4

Answer :

(i)

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

$$\left(\tfrac{1}{12}\right)^2$$

$$= \frac{1^2}{12^2} \qquad \text{---> } ((a/b)^n = (a^n)/(b^n))$$

$$= \frac{1}{24}$$

(ii)

$$\left(5^{-1} \div 6^{-1}\right)^3 = \left(\tfrac{1}{5} \div \tfrac{1}{6}\right)^3 \qquad \text{---> } (a^{-1} = 1/a)$$

$$= \left(\tfrac{1}{5} \times 6\right)$$

$$= \left(\frac{6}{5}\right)^3$$

$$= \frac{(6)^3}{(5)^3} \qquad \text{---> } ((a/b)^n = (a^n)/(b^n))$$

$$= \frac{216}{125}$$

(iii)

$$\left(2^{-1} + 3^{-1}\right)^{-1} = \left(\tfrac{1}{2} + \tfrac{1}{3}\right)^{-1} \qquad \text{---> } (a^{-1} = 1/a)$$

$$= \left(\tfrac{5}{6}\right)^{-1}$$

$$= \frac{1}{5/6} \qquad \text{---> } (a^{-1} = 1/a)$$

$$= \frac{6}{5}$$

(iv)

$$\left(3^{-1} \times 4^{-1}\right)^{-1} \times 5^{-1} = \left(\tfrac{1}{3} \times \tfrac{1}{4}\right)^{-1} \times \tfrac{1}{5} \qquad \text{---> } (a^{-1} = 1/a)$$

$$= \left(\tfrac{1}{12}\right)^{-1} \times$$

$$= \frac{12}{5} \qquad \text{---> } (a^{-1} = 1/a)$$

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