Powers Ex 2.2 Q4

Answer :

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

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

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

$=\frac{1}{144}$

$(ii)\left(5^{-1}\div 6^{-1}\right)^3=\left(\frac{1}{5}\div\frac{1}{6}\right)^3$ ---> (a^{-1} = 1/a)

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

$=\frac{216}{125}$ --->((a/b)^n = (a^n)/(b^n))

$(iii)\left(2^{-1}+3^{-1}\right)^{-1}=\left(\frac{1}{2}+\frac{1}{3}\right)^{-1}$ $---> (\mathbf{a^{-1}=1/a})$

$=\left(\frac{5}{6}\right)^{-1}=\frac{6}{5}$ $---> (\mathbf{a^{-1}=1/a})$

$(iv)\left(3^{-1}\times 4^{-1}\right)^{-1}\times 5^{-1}=\left(\frac{1}{3}\times\frac{1}{4}\right)^{-1}\times\frac{1}{5}$ ---> (a^{-1} = 1/a)

$=\left(\frac{1}{12}\right)^{-1}\times\frac{1}{5}$

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

$=\frac{12}{5}$

$(v)\left(4^{-1}-5^{-1}\right)\div 3^{-1}=\left(\frac{1}{4}-\frac{1}{5}\right)\div\frac{1}{3}$ ---> (a^{-1} = 1/a)

$=\left(\frac{5-4}{20}\right)\times$

$=\frac{1}{20}\times 3$

$=\frac{3}{20}$

Powers Ex 2.2 Q5

Answer :

(i).

$$\left(\frac{1}{4}\right)^3$$

$$= \left(\frac{4}{1}\right)^{-3} \quad \left[\because a^{-n} = \frac{1}{a^n}\right]$$

(ii).

$$(3)^5$$

$$= \left(\frac{1}{3}\right)^{-5} \quad \left[\because a^{-n} = \frac{1}{a^n}\right]$$

(iii).

$$\left(\frac{3}{5}\right)^4$$

$$= \left(\frac{5}{3}\right)^{-4} \quad \left[\because a^{-n} = \frac{1}{a^n}\right]$$

(iv).

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

$$= \left(\frac{3}{2}\right)^{-12} \quad \left[\because (a^m)^n = a^{mn}\right]$$

(v).

$$\left\{\left(\frac{7}{3}\right)^4\right\}^{-3}$$

$$= \left(\frac{7}{3}\right)^{-12} \quad \left[\because (a^m)^n = a^{mn}\right]$$

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