



Powers Ex 2.2 Q4

**Answer :**

$$\begin{aligned}
 (i) (4^{-1} \times 3^{-1})^2 &= \left(\frac{1}{4} \times \frac{1}{3}\right)^2 & \longrightarrow (a^{-1} = 1/a) \\
 &= \left(\frac{1}{12}\right)^2 \\
 &= \frac{(1)^2}{(12)^2} & \longrightarrow ((a/b)^n = (a^n)/(b^n)) \\
 &= \frac{1}{144}
 \end{aligned}$$

$$\begin{aligned}
 (ii) (5^{-1} \div 6^{-1})^3 &= \left(\frac{1}{5} \div \frac{1}{6}\right)^3 & \longrightarrow (a^{-1} = 1/a) \\
 &= \left(\frac{6}{5}\right)^3 \\
 &= \frac{216}{125} & \longrightarrow ((a/b)^n = (a^n)/(b^n))
 \end{aligned}$$

$$\begin{aligned}
 (iii) (2^{-1} + 3^{-1})^{-1} &= \left(\frac{1}{2} + \frac{1}{3}\right)^{-1} & \longrightarrow (a^{-1} = 1/a) \\
 &= \left(\frac{5}{6}\right)^{-1} = \frac{6}{5} & \longrightarrow (a^{-1} = 1/a)
 \end{aligned}$$

$$\begin{aligned}
 (iv) (3^{-1} \times 4^{-1})^{-1} \times 5^{-1} &= \left(\frac{1}{3} \times \frac{1}{4}\right)^{-1} \times \frac{1}{5} & \longrightarrow (a^{-1} = 1/a) \\
 &= \left(\frac{1}{12}\right)^{-1} \times \frac{1}{5} \\
 &= 12 \times \frac{1}{5} & \longrightarrow (a^{-1} = 1/a) \\
 &= \frac{12}{5}
 \end{aligned}$$

$$\begin{aligned}
 (v) (4^{-1} - 5^{-1}) \div 3^{-1} &= \left(\frac{1}{4} - \frac{1}{5}\right) \div \frac{1}{3} & \longrightarrow (a^{-1} = 1/a) \\
 &= \left(\frac{5-4}{20}\right) \times 3 \\
 &= \frac{1}{20} \times 3 \\
 &= \frac{3}{20}
 \end{aligned}$$

Powers Ex 2.2 Q5

**Answer :**

(i).

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

(ii).

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

(iii).

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

(iv).

$$\begin{aligned} & \left\{\left(\frac{3}{2}\right)^4\right\}^{-3} \\ &= \left(\frac{3}{2}\right)^{-12} \quad \left[\because (a^m)^n = a^{mn}\right] \end{aligned}$$

(v).

$$\begin{aligned} & \left\{\left(\frac{7}{3}\right)^4\right\}^{-3} \\ &= \left(\frac{7}{3}\right)^{-12} \quad \left[\because (a^m)^n = a^{mn}\right] \end{aligned}$$

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