



Exercise 6B

$$= \frac{-4}{5} a^5 b^3$$

When $a = 2$ and $b = 3$, we get:

$$\frac{-2}{3} a^2 b = \frac{-2}{3} \times 2^2 \times 3 = -8$$

$$\frac{6}{5} a^3 b^2 = \frac{6}{5} \times 2^3 \times 3^2 = \frac{432}{5}$$

$$\text{L.H.S.} = \frac{-2}{3} a^2 b \times \frac{6}{5} a^3 b^2 = -8 \times \frac{432}{5} = \frac{-3456}{5}$$

$$\text{R.H.S.} = \frac{-4}{5} a^5 b^3 = \frac{-4}{5} \times 2^5 \times 3^3 = \frac{-3456}{5}$$

L.H.S. = R.H.S.

Hence, the result is verified.

Q19

Answer :

$$\frac{-8}{21} x^2 y^3 \times \frac{-7}{16} xy^2 = \left(\frac{-8}{21} \times \frac{-7}{16} \right) (x^{2+1}) (y^{3+2}) = \frac{1}{6} \times x^3 \times y^5$$

When $x = 3$ and $y = 2$, we get :

$$\text{L.H.S.} = \frac{-8}{21} x^2 y^3 \times \frac{-7}{16} xy^2 = \frac{-192}{7} \times \frac{-21}{4} = 144$$

$$\text{R.H.S.} = \frac{1}{6} x^3 y^5 = \frac{1}{6} \times 3^3 \times 2^5 = 144$$

L.H.S. = R.H.S.

$$\therefore \frac{-8}{21} x^2 y^3 \times \frac{-7}{16} xy^2 = \frac{1}{6} x^3 y^5$$

Q20

Answer :

$$\begin{aligned}
&= (2.3 \times 1.2) \times (a^5 \times a^2 \times b^2 \times b^2) \\
&= 2.76 \times a^{(5+2)} \times b^{(2+2)} \\
&= 2.76a^7b^4
\end{aligned}$$

When $a = 1$ and $b = 0.5$, we get :

$$2.76a^7b^4 = 2.76 \times 1^7 \times 0.5^4 = 0.1725$$

Q21

Answer :

$$\begin{aligned}
&= (-8 \times (-20)) \times (u^2 \times u \times v^6 \times v) \\
&= 160 \times u^{(2+1)} \times v^{(6+1)} \\
&= 160u^3v^7 \\
160u^3v^7 &= 160 \times 2.5^3 \times 1^7 = 2500
\end{aligned}$$

Q22

Answer :

$$\begin{aligned}
&= \left(\frac{2}{5} \times -15 \times \frac{-1}{2}\right) \times (a^2 \times a \times b \times b^2 \times c \times c^2) \\
&= 3 \times a^{(2+1)} \times b^{(1+2)} \times c^{(1+2)} \\
&= 3a^3b^3c^3
\end{aligned}$$

When $a = 1$, $b = 2$ and $c = 3$, we get :

$$\begin{aligned}
\frac{2}{5}a^2b &= \frac{2}{5} \times 1^2 \times 2 = \frac{4}{5} \\
-15b^2ac &= -15 \times 2^2 \times 1 \times 3 = -180 \\
\frac{-1}{2}c^2 &= \frac{-1}{2} \times 3^2 = \frac{-9}{2}
\end{aligned}$$

$$\text{L.H.S.} = \frac{2}{5} a^2 b \times -15b^2 ac \times \frac{-1}{2} c^2 = \frac{4}{5} \times -180 \times \frac{-9}{2} = 648$$

$$\text{R.H.S.} = 3a^3 b^3 c^3 = 3 \times 1^3 \times 2^3 \times 3^3 = 648$$

$$\text{L.H.S.} = \text{R.H.S.}$$

$$\therefore \frac{2}{5} a^2 b \times -15b^2 ac \times \frac{-1}{2} c^2 = 3a^3 b^3 c^3$$

Q23

Answer :

$$\begin{aligned} &= \left(\frac{1}{4} \times -6 \times -\frac{1}{3} \right) \times \left(a \times b \times b^2 \times c \times c \times c^3 \right) \\ &= \frac{1}{2} \times a \times b^{(1+2)} \times c^{(1+1+3)} \\ &= \frac{1}{2} ab^3 c^5 \end{aligned}$$

When $a = 1$, $b = 2$ and $c = 3$, we get :

$$\frac{1}{4} abc = \frac{1}{4} \times 1 \times 2 \times 3 = \frac{3}{2}$$

$$-6b^2c = -6 \times 2^2 \times 3 = -72$$

$$-\frac{1}{3}c^3 = -\frac{1}{3} \times 3^3 = -9$$

$$\text{L.H.S.} = \frac{1}{4} abc \times -6b^2c \times -\frac{1}{3}c^3 = \frac{3}{2} \times -72 \times -9 = 972$$

$$\text{R.H.S.} = \frac{1}{2} ab^3 c^5 = \frac{1}{2} \times 1 \times 2^3 \times 3^5 = 972$$

$$\text{L.H.S.} = \text{R.H.S.}$$

$$\therefore \frac{1}{4} abc \times -6b^2c \times -\frac{1}{3}c^3 = \frac{1}{2} ab^3 c^5$$

Q24

Answer :

$$\begin{aligned} &= \left(\frac{4}{9} \times \frac{-27}{5} \times -8 \right) \times \left(a \times a^3 \times b \times b^2 \times b^3 \times c^3 \times c \right) \\ &= \frac{96}{5} \times a^{(1+3)} \times b^{(1+2+3)} \times c^{(3+1)} \\ &= \frac{96}{5} a^4 b^6 c^4 \end{aligned}$$

When $a = 1$, $b = 2$ and $c = 3$:

$$\begin{aligned} \text{L.H.S.} &: \left(\frac{4}{9} \times \frac{-27}{5} \times -8 \right) \times \left(a \times a^3 \times b \times b^2 \times b^3 \times c^3 \times c \right) \\ &= \left(\frac{4}{9} \times \frac{-27}{5} \times -8 \right) \times \left(1 \times 1^3 \times 2 \times 2^2 \times 2^3 \times 3^3 \times 3 \right) \\ &= \frac{497664}{5} \end{aligned}$$

$$\text{R.H.S.} : \frac{96}{5} a^4 b^6 c^4 = \frac{96}{5} (1^4 \times 2^6 \times 3^4) = \frac{497664}{5}$$

$$\text{L.H.S.} = \text{R.H.S.}$$

Hence, verified.

Q225

Answer :

$$\begin{aligned} &= \left(\frac{-4}{7} \times \frac{-2}{3} \times \frac{-7}{6} \right) \times \left(a^2 \times a \times b \times b^2 \times c \times c^2 \right) \\ &= -\frac{4}{9} a^{(2+1)} \times b^{(1+2)} \times c^{(1+2)} \\ &= -\frac{4}{9} a^3 b^3 c^3 \end{aligned}$$

$$\begin{aligned} \text{L.H.S.} &: \left(\frac{-4}{7} \times \frac{-2}{3} \times \frac{-7}{6} \right) \times \left(1^2 \times 1 \times 2 \times 2^2 \times 3 \times 3^2 \right) \\ &= -96 \end{aligned}$$

$$\text{R.H.S.} : -\frac{4}{9} \times 1^3 \times 2^3 \times 3^3 = -96$$

$$\text{L.H.S.} = \text{R.H.S.}$$

Hence, verified.

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