



Exercise 2C

Q1

Answer :

(c) $\frac{125}{8}$

$$\left(\frac{2}{5}\right)^{-3} = \left(\frac{5}{2}\right)^3 = \frac{5^3}{2^3} = \frac{125}{8}$$

Q2

Answer :

(d) $\frac{1}{81}$

$$(-3)^{-4} = \frac{1}{(-3)^4} = \frac{1}{(-1)^4 \times (3)^4} = \frac{1}{(3)^4} = \frac{1}{81}$$

Q3

Answer :

(b) $\frac{-1}{32}$

$$(-2)^{-5} = \frac{1}{(-2)^5} = \frac{1}{-32} = \frac{1 \times (-1)}{-32 \times (-1)} = \frac{-1}{32}$$

Q4

Answer :

(d) $\frac{1}{8}$

$$\left(2^{-5} \div 2^{-2}\right) = \left(\frac{1}{2^5} \div \frac{1}{2^2}\right) = \left(\frac{1}{32} \div \frac{1}{4}\right) = \left(\frac{1}{32} \times 4\right) = \frac{4}{32} = \frac{1}{8}$$

Q5

Answer :

(b) $\frac{60}{7}$

$$\left(3^{-1} + 4^{-1}\right)^{-1} \div 5^{-1} = \left(\frac{1}{3} + \frac{1}{4}\right)^{-1} \div \frac{1}{5} = \left(\frac{4+3}{12}\right)^{-1} \div \frac{1}{5} = \left(\frac{7}{12}\right)^{-1} \div \frac{1}{5} = \left(\frac{12}{7}\right) \div \frac{1}{5} = \frac{12}{7}$$

$$\times 5 = \frac{60}{7}$$

Q6

Answer :

(c) 29

$$\begin{aligned} \left(\frac{1}{2}\right)^{-2} + \left(\frac{1}{3}\right)^{-2} + \left(\frac{1}{4}\right)^{-2} &= \left(\frac{2}{1}\right)^2 + \left(\frac{3}{1}\right)^2 + \left(\frac{4}{1}\right)^2 \\ &= 2^2 + 3^2 + 4^2 \\ &= 4 + 9 + 16 \\ &= 29 \end{aligned}$$

Q7

Answer :

$$(a) \frac{19}{64}$$

$$\begin{aligned} &\left\{\left(\frac{1}{3}\right)^{-3} - \left(\frac{1}{2}\right)^{-3}\right\} \div \left(\frac{1}{4}\right)^{-3} \\ &= \{3^3 - 2^3\} \div 4^3 \\ &= \{27 - 8\} \div 64 \\ &= 19 \div 64 \\ &= \frac{19}{64} \end{aligned}$$

Q8

Answer :

$$(a) \frac{1}{16}$$

$$\begin{aligned} & \left[\left\{ \left(-\frac{1}{2} \right)^2 \right\}^{-2} \right]^{-1} \\ &= \left[\left\{ -\frac{1}{2} \right\}^{-4} \right]^{-1} \\ &= \left(-\frac{1}{2} \right)^{(-4 \times -1)} \\ &= \left(-\frac{1}{2} \right)^4 \\ &= \frac{1}{16} \end{aligned}$$

Q9

Answer :

$$(d) 3$$

$$\begin{aligned} & \left(\frac{7}{12} \right)^{-4} \times \left(\frac{7}{12} \right)^{3x} = \left(\frac{7}{12} \right)^5 \\ & \Rightarrow \left(\frac{7}{12} \right)^{-4+3x} = \left(\frac{7}{12} \right)^5 \\ & \Rightarrow 3x - 4 = 5 \\ & 3x = 9 \\ & \text{or } x = \frac{9}{3} = 3 \end{aligned}$$

Q10

Answer :

(d) 2

$$(2^{3x-1} + 10) \div 7 = 6$$

$$\Rightarrow \frac{(2^{3x-1} + 10)}{7} = \frac{6}{1}$$

On cross multiplying :

$$(2^{3x-1} + 10) \times 1 = 6 \times 7 = 42$$

$$\Rightarrow 2^{3x-1} = 42 - 10$$

$$\Rightarrow 2^{3x-1} = 32$$

$$\Rightarrow 2^{3x-1} = 2^5$$

$$\Rightarrow 3x-1 = 5$$

$$\Rightarrow 3x = 6$$

Therefore, $x = 2$

Q11

Answer :

(c) 1

Using the law of exponents $\left(\frac{a}{b}\right)^0 = 1$:

$$\therefore \left(\frac{2}{3}\right)^0 = 1$$

Q12

Answer :

(c) $\frac{-3}{5}$

$$\left(\frac{-5}{3}\right)^{-1} = \left(\frac{3}{-5}\right)^1 = \frac{3}{-5} = \frac{3 \times (-1)}{-5 \times (-1)} = \frac{-3}{5}$$

*****END*****