



# Exercise 5C

Q12

**Answer :**

(b)  $\frac{-2}{3}$

We have:

$$\begin{aligned} \left(\frac{-3}{2}\right)^{-1} &= \left(\frac{2}{-3}\right)^1 \quad \left[ \text{since } \left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n \right] \\ &= \frac{-2}{3} \end{aligned}$$

Q13

**Answer :**

(d)  $\frac{135}{8}$

$$\begin{aligned} (3^2 - 2^2) \times \left(\frac{2}{3}\right)^{-3} &= (9 - 4) \times \left(\frac{3}{2}\right)^3 \quad \left[ \text{since } \left(\frac{a}{b}\right)^{-1} = \left(\frac{b}{a}\right)^1 \right] \\ &= 5 \times \frac{3^3}{2^3} = 5 \times \frac{27}{8} = \frac{135}{8} \end{aligned}$$

Q14

**Answer :**

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

We have:

$$\begin{aligned} \left\{ \left(\frac{1}{3}\right)^{-3} - \left(\frac{1}{2}\right)^{-3} \right\} \div \left(\frac{1}{4}\right)^{-3} &= \left\{ \left(\frac{3}{1}\right)^3 - \left(\frac{2}{1}\right)^3 \right\} \div \left(\frac{4}{1}\right)^3 \\ \left[ \text{since } \left(\frac{a}{b}\right)^{-1} = \left(\frac{b}{a}\right)^1 \right] \\ &= \left\{ (3^3) - (2)^3 \right\} \div (4)^3 \\ &= (27 - 8) \div 64 \end{aligned}$$

$$\begin{aligned}
 &= 19 \div 64 \\
 &= 19 \times \frac{1}{64} = \frac{19}{64}
 \end{aligned}$$

Q15

**Answer :**

(c)  $(-5)^5$

We have:

$$\begin{aligned}
 \left(\frac{-1}{5}\right)^3 \div \left(\frac{-1}{5}\right)^8 &= \left(\frac{-1}{5}\right)^{3-8} && [\text{since } a^m \div a^n = a^{m-n}] \\
 &= \left(\frac{-1}{5}\right)^{-5} \\
 &= \left(\frac{5}{-1}\right)^5 && \left[ \text{Since } \left(\frac{a}{b}\right)^{-1} = \left(\frac{b}{a}\right)^1 \right] \\
 &= \left(\frac{5 \times -1}{-1 \times -1}\right)^5 = \left(\frac{-5}{1}\right)^5 = (-5)^5
 \end{aligned}$$

Q16

**Answer :**

(a)  $\frac{4}{25}$

$$\begin{aligned}
 \left(\frac{-2}{5}\right)^7 \div \left(\frac{-2}{5}\right)^5 &= \left(\frac{-2}{5}\right)^{7-5} && [\text{since } a^m \div a^n = a^{m-n}] \\
 &= \left(\frac{-2}{5}\right)^2 \\
 &= \frac{(-2)^2}{(5)^2} = \frac{4}{25}
 \end{aligned}$$

Q17

**Answer :**

(c)  $\frac{4}{9}$

$$\left(\frac{-2}{3}\right)^2 = \frac{-2}{3} \times \frac{-2}{3} = \frac{4}{9}$$

Q18

**Answer :**

(b)  $\frac{-1}{8}$

We have:

$$\left(\frac{-1}{2}\right)^3 = \frac{-1}{2} \times \frac{-1}{2} \times \frac{-1}{2} = \frac{-1}{8}$$

Q19

**Answer :**

(c)  $\frac{3}{4}$

$$\begin{aligned} \left(\frac{5}{3}\right)^{-5} \times \left(\frac{5}{3}\right)^{11} &= \left(\frac{5}{3}\right)^{8x} \\ \Rightarrow \left(\frac{5}{3}\right)^{-5+11} &= \left(\frac{5}{3}\right)^{8x} \quad [\text{since } a^m \times a^n = a^{m+n}] \\ \Rightarrow \left(\frac{5}{3}\right)^6 &= \left(\frac{5}{3}\right)^{8x} \end{aligned}$$

On equating the coefficients:

$$6 = 8x$$

$$\therefore x = \frac{6}{8} = \frac{3}{4}$$

Q20

**Answer :**

(c)  $\frac{-4}{5}$

Let the required number be  $x$ .

$$(-8)^{-1} \times x = (10)^{-1}$$

$$\Rightarrow \frac{1}{-8} \times x = \frac{1}{10}$$

$$\therefore x = \frac{1}{10} \times (-8) = \frac{-4}{5}$$

Hence, the required number is  $\frac{-4}{5}$ .

Q21

**Answer :**

(c)  $2.156 \times 10^6$

A given number is said to be in standard form if it can be expressed as  $k \times 10^n$ , where  $k$  is a real number such that  $1 \leq k < 10$  and  $n$  is a positive integer.

For example:  $2.156 \times 10^6$

\*\*\*\*\* END \*\*\*\*\*