



The greatest common divisor for the numerator and the denominator is 3.

$$\therefore x = \frac{-6}{9} = \frac{(-6) \div 3}{9 \div 3} = \frac{-2}{3}$$

Q12

Answer :

Let the number be x .

$$\begin{aligned}\therefore \left(\frac{-2}{3}\right)^{-3} \div x &= \left(\frac{4}{27}\right)^{-2} \\ \Rightarrow \left(\frac{3}{-2}\right)^3 \div x &= \left(\frac{27}{4}\right)^2 \\ \Rightarrow \left(\frac{-3}{2}\right)^3 \div x &= \left(\frac{27}{4}\right)^2 \\ \Rightarrow \left(\frac{-3}{2}\right)^3 \times \frac{1}{x} &= \left(\frac{27}{4}\right)^2 \\ \Rightarrow \frac{-3^3}{2^3} \times \frac{1}{x} &= \frac{27^2}{4^2}\end{aligned}$$

$$\Rightarrow \frac{-27}{8} \times \frac{1}{x} = \frac{27^2}{4^2} = \frac{27 \times 27}{4 \times 4} = \frac{27 \times 27}{4 \times 2 \times 2} = \frac{27 \times 27}{8 \times 2}$$

$$\therefore \frac{1}{x} = \left(\frac{27 \times 27}{8 \times 2} \right) \div \left(\frac{-27}{8} \right)$$

$$\Rightarrow x = \frac{\left(\frac{-27}{8} \right)}{\left(\frac{27 \times 27}{8 \times 2} \right)} = \left(\frac{-27}{8} \right) \times \left(\frac{8 \times 2}{27 \times 27} \right) = \frac{-2}{27}$$

Q13

Answer :

Given:

$$5^{2x+1} \div 25 = 125$$

We know :

$$25 = 5 \times 5 = 5^2$$

$$125 = 5 \times 5 \times 5 = 5^3$$

$$\therefore \frac{5^{2x+1}}{5^2} = 5^3 \Rightarrow 5^{[(2x+1)-2]} = 5^3$$

$$\text{or } 5^{[(2x+1)-2]} = 5^{[2x-1]} = 5^3$$

$$\Rightarrow 2x - 1 = 3$$

$$2x = 3 + 1 = 4$$

$$x = \frac{4}{2} = 2$$

$$\therefore x = 2$$

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***** END *****