



Powers Ex 2.1 Q1

Answer :

We know that $a^{-n} = \frac{1}{a^n}$. Therefore,

(i)

$$2^{-3} = \frac{1}{2^3} = \frac{1}{8}$$

(ii)

$$(-4)^{-2} = \frac{1}{(-4)^2} = \frac{1}{16}$$

(iii)

$$\frac{1}{3^{-2}} = 3^2 = 9$$

(iv)

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

(v)

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

Powers Ex 2.1 Q2

Answer :

(i) We know from the property of powers that for every natural number a , $a^{-1} = 1/a$. Then:

$$\begin{aligned} 3^{-1} + 4^{-1} &= \frac{1}{3} + \frac{1}{4} \quad \text{---> } (a^{-1} = 1/a) \\ &= \frac{4+3}{12} \\ &= \frac{7}{12} \end{aligned}$$

(ii) We know from the property of powers that for every natural number a , $a^{-1} = 1/a$.

Moreover, a^0 is 1 for every natural number a not equal to 0. Then:

$$\begin{aligned} &(3^0 + 4^{-1}) \times 2^2 \\ &= \left(1 + \frac{1}{4}\right) \times 4 \quad \left[as, a^{-1} = \frac{1}{a}; a^0 = 1\right] \\ &= \frac{5}{4} \times 4 \\ &= 5 \end{aligned}$$

(iii) We know from the property of powers that for every natural number a , $a^{-1} = 1/a$.

Moreover, a^0 is 1 for every natural number a not equal to 0. Then:

$$(3^{-1} + 4^{-1} + 5^{-1}) = 1 \quad \text{---> (Ignore the expression inside the bracket and use } a^0 = 1 \text{ immediately.)}$$

(iv) We know from the property of powers that for every natural number a , $a^{-1} = 1/a$. Then:

$$\begin{aligned} \left(\left(\frac{1}{3}\right)^{-1} - \left(\frac{1}{4}\right)^{-1}\right)^{-1} &= (3-4)^{-1} \quad \text{---> } (a^{-1} = 1/a) \\ &= (-1)^{-1} \\ &= -1 \quad \text{---> } (a^{-1} = 1/a) \end{aligned}$$

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