

BÀI TẬP

Bài 1: Tính $\left(\frac{-1}{4}\right)^2, \left(\frac{1}{4}\right)^2, \left(\frac{-5}{2}\right)^3, \left(-3\frac{1}{2}\right)^2, \left(3\frac{1}{2}\right)^2$

Bài 2: Tính

a) $\left(\frac{-1}{4}\right) \cdot \left(\frac{-1}{4}\right)^2$

c) $\left(\frac{3}{2}\right)^5 : \left(\frac{-3}{2}\right)^4$

b) $\left(\frac{5}{6}\right)^7 : \left(\frac{5}{6}\right)^4$

d) $\left[\left(\frac{-2}{3}\right)^3\right]^2$

Bài 3: Tìm số tự nhiên n, biết

a) $\left(\frac{-1}{5}\right)^n = \frac{-1}{125}$

b) $\left(\frac{-2}{11}\right)^n = \frac{4}{121}$

c) $7^{2n} + 7^{2n+2} = 2450$

Bài 4: Vận dụng các công thức đã học em hãy tìm giá trị của các biểu thức sau:

a) $M = \frac{4^2 \cdot 4^3}{2^{10}}$

c) $H = \frac{2^{29} \cdot 9^{16}}{8^9 \cdot 27^{11}}$

b) $N = \frac{2^7 \cdot 9^3}{6^5 \cdot 8^2}$

d) $K = \frac{2^{15} \cdot 9^4}{6^6 \cdot 8^3}$

HƯỚNG DẪN GIẢI

Câu 1:

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

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

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

$$\left(-3\frac{1}{2}\right)^2 = \left(\frac{-7}{2}\right)^2 = \frac{(-7)^2}{2^2} = \frac{49}{4}$$

$$\left(3\frac{1}{2}\right)^2 = \left(\frac{7}{2}\right)^2 = \frac{7^2}{2^2} = \frac{49}{4}$$

Câu 2:

$$a) \left(\frac{-1}{4}\right) \cdot \left(\frac{-1}{4}\right)^2 = \left(\frac{-1}{4}\right)^3 = \frac{-1}{64}$$

$$c) \left(\frac{3}{2}\right)^5 : \left(\frac{-3}{2}\right)^4 = \left(\frac{3}{2}\right)^5 : \left(\frac{3}{2}\right)^4 = \frac{3}{2}$$

$$b) \left(\frac{5}{6}\right)^7 : \left(\frac{5}{6}\right)^4 = \left(\frac{5}{6}\right)^3 = \frac{125}{216}$$

$$d) \left[\left(\frac{-2}{3}\right)^3\right]^2 = \left(\frac{-2}{3}\right)^6 = \frac{64}{729}$$

Câu 3:

$$a) \left(\frac{-1}{5}\right)^n = \frac{-1}{125}$$

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

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

$$\Rightarrow n = 3$$

$$b) \left(\frac{-2}{11}\right)^n = \frac{4}{121}$$

$$\left(\frac{-2}{11}\right)^n = \frac{(-2)^2}{11^2}$$

$$\left(\frac{-2}{11}\right)^n = \left(\frac{-2}{11}\right)^2$$

$$\Rightarrow n = 2$$

$$c) 7^{2n} + 7^{2n+2} = 2450$$

$$7^{2n} + 7^{2n} \cdot 7^2 = 2450$$

$$7^{2n} \cdot (1 + 7^2) = 2450$$

$$7^{2n} \cdot (1 + 49) = 2450$$

$$7^{2n} \cdot 50 = 2450$$

$$7^{2n} = 2450 : 50$$

$$7^{2n} = 49$$

$$7^{2n} = 7^2$$

$$\Rightarrow 2n = 2$$

$$n = 2 : 2$$

$$n = 1$$

Câu 4:

$$a) M = \frac{4^2 \cdot 4^3}{2^{10}}$$

$$M = \frac{(2^2)^2 \cdot (2^2)^3}{2^{10}}$$

$$M = \frac{2^4 \cdot 2^6}{2^{10}}$$

$$M = \frac{2^{10}}{2^{10}} = 1$$

$$c) H = \frac{2^{29} \cdot 9^{16}}{8^9 \cdot 27^{11}}$$

$$H = \frac{2^{29} \cdot (3^2)^{16}}{(2^3)^9 \cdot (3^3)^{11}}$$

$$H = \frac{2^{29} \cdot 3^{32}}{2^{27} \cdot 3^{33}}$$

$$H = \frac{2^2}{3}$$

$$H = \frac{4}{3}$$

$$b) N = \frac{2^7 \cdot 9^3}{6^5 \cdot 8^2}$$

$$N = \frac{2^7 \cdot (3^2)^3}{(2 \cdot 3)^5 \cdot (2^3)^2}$$

$$N = \frac{2^7 \cdot 3^6}{2^5 \cdot 3^5 \cdot 2^6}$$

$$N = \frac{2^7 \cdot 3^6}{2^{11} \cdot 3^5}$$

$$N = \frac{3}{2^4}$$

$$N = \frac{3}{16}$$

$$d) K = \frac{2^{15} \cdot 9^4}{6^6 \cdot 8^3}$$

$$K = \frac{2^{15} \cdot (3^2)^4}{(2 \cdot 3)^6 \cdot (2^3)^3}$$

$$K = \frac{2^{15} \cdot 3^8}{2^6 \cdot 3^6 \cdot 2^9}$$

$$K = \frac{2^{15} \cdot 3^8}{2^{15} \cdot 3^6}$$

$$K = 3^2$$

$$K = 9$$