

1. Realiza, paso a paso, las siguientes operaciones combinadas con números naturales:

1) $3 \cdot 5^2 - 9^5 : 9^3 =$

2) $10^4 \cdot 10^2 : (10^2 \cdot 10^3) =$

3) $2^3 \cdot 4^3 - 2 \cdot 5^2 =$

4) $5^3 : (4 + 7 \cdot 3) - 2 =$

5) $3^4 - 3^2 + 3^5 - 3^2 =$

6) $3^2 - 4^3 + 5^2 =$

7) $3 \cdot 2^3 - (3 - 4)^4 + 2 \cdot 3^2 =$

8) $3^2 \cdot (2^2 + 1) - (3^2 - 4^2) : 2^0 =$

9) $5^2 : (5^0 - 4^0 + 1^3) - 3^2 =$

10) $2^{10} : 2^8 \cdot 3^2 - 4^2 : 2^4 =$

$$\begin{aligned} 5) \quad & 3^4 - 3^2 + 3^5 - 3^2 = \\ & = 81 - 9 + 243 - 9 = \\ & = 72 + 243 - 9 = \\ & = 315 - 9 = \\ & = 306 \end{aligned}$$

$$\begin{aligned} 6) \quad & 3^2 - 4^3 + 5^2 = \\ & = 9 - 64 + 25 = \\ & = -55 + 25 = \\ & = -30 \end{aligned}$$

$$\begin{aligned} 7) \quad & 3 \cdot 2^3 - (3 - 4)^4 + 2 \cdot 3^2 = \\ & = 3 \cdot 8 - (-1)^4 + 2 \cdot 9 = \\ & = 3 \cdot 8 - 1 + 2 \cdot 9 = \\ & = 24 - 1 + 18 = \\ & = 41 \end{aligned}$$

$$\begin{aligned} 8) \quad & 3^2 \cdot (2^2 + 1) - (3^2 - 4^2) : 2^0 = \\ & = 9 \cdot (4 + 1) - (9 - 16) : 1 = \\ & = 9 \cdot 5 - (-7) : 1 = \\ & = 45 - (-7) = \\ & \quad \downarrow \\ & = 45 + (+7) = 52 \end{aligned}$$

$$\begin{aligned} 9) \quad & 5^2 : (5^0 - 4^0 + 1^3) - 3^2 = \\ & = 25 : (1 - 1 + 1) - 9 = \\ & = 25 : 1 - 9 = \\ & = 25 - 9 = \\ & = 16 \end{aligned}$$

$$\begin{aligned} 10) \quad & 2^{10} : 2^8 \cdot 3^2 - 4^2 : 2^4 = \\ & = 2^2 \cdot 3^2 - 16 : 16 = \\ & = 4 \cdot 9 - 16 : 16 = \\ & = 36 - 1 = \\ & = 35 \end{aligned}$$

2. Realiza las siguientes operaciones combinadas, teniendo en cuenta la jerarquía de las operaciones:

a) $2^3 + 4 \cdot 5$

b) $8 \cdot (5 + 2) - 6^2$

c) $2 \cdot (5 + 6)^2$

d) $\sqrt{144} : \sqrt{16} + 2 \cdot 5$

e) $3 + \sqrt{16} + 2 \cdot (3^2 - 4)$

f) $2^3 \cdot 3 + \sqrt{25} - 2 - \sqrt{36}$

g) $5 \cdot (8 - 2) - 2^2$

h) $\sqrt{25} - \sqrt{16} + 3^3$

i) $2^2 \cdot 4 + \sqrt{49}$

j) $4 \cdot (5 - 3) + 3^2$

k) $\sqrt{36} + \sqrt{25} - 1$

l) $6^2 : \sqrt{36} + 2 \cdot (2^2 - 2)^2$

$$\begin{aligned} \text{a)} \quad & 2^3 + 4 \cdot 5 = \\ & = 8 + 4 \cdot 5 = \\ & = 8 + 20 = \\ & = 28 \end{aligned}$$

$$\begin{aligned} \text{c)} \quad & 2 \cdot (5+6)^2 = \\ & = 2 \cdot 11^2 = \\ & = 2 \cdot 121 = \\ & = 242 \end{aligned}$$

$$\begin{aligned} \text{e)} \quad & 3 + \sqrt{16} + 2 \cdot (3^2 - 4) = \\ & = 3 + 4 + 2 \cdot (9 - 4) = \\ & = 3 + 4 + 2 \cdot 5 = \\ & = 3 + 4 + 10 = \\ & = 17 \end{aligned}$$

$$\begin{aligned} \text{g)} \quad & 5 \cdot (8-2) - 2^2 = \\ & = 5 \cdot 6 - 2^2 = \\ & = 5 \cdot 6 - 4 = \\ & = 30 - 4 = \\ & = 26 \end{aligned}$$

$$\begin{aligned} \text{i)} \quad & 2^2 \cdot 4 + \sqrt{49} = \\ & = 4 \cdot 4 + 7 = \\ & = 16 + 7 = \\ & = 23 \end{aligned}$$

$$\begin{aligned} \text{b)} \quad & 8 \cdot (5+2) - 6^2 = \\ & = 8 \cdot 7 - 6^2 = \\ & = 8 \cdot 7 - 36 = \\ & = 56 - 36 = \\ & = 20 \end{aligned}$$

$$\begin{aligned} \text{d)} \quad & \sqrt{144} : \sqrt{16} + 2 \cdot 5 = \\ & = 12 : 4 + 2 \cdot 5 = \\ & = 3 + 10 = \\ & = 13 \end{aligned}$$

$$\begin{aligned} \text{f)} \quad & 2^3 \cdot 3 + \sqrt{25} - 2 - \sqrt{36} = \\ & = 8 \cdot 3 + 5 - 2 - 6 = \\ & = 24 + 5 - 2 - 6 = \\ & = 21 \end{aligned}$$

$$\begin{aligned} \text{h)} \quad & \sqrt{25} - \sqrt{16} + 3^3 = \\ & = 5 - 4 + 27 = \\ & = 28 \end{aligned}$$

$$\begin{aligned} \text{j)} \quad & 4 \cdot (5-3) + 3^2 = \\ & = 4 \cdot 2 + 3^2 = \\ & = 4 \cdot 2 + 9 = \\ & = 8 + 9 = \\ & = 17 \end{aligned}$$

$$\begin{aligned} \text{k)} \quad & \sqrt{36} + \sqrt{25} - 1 = \\ & = 6 + 5 - 1 = \\ & = 10 \end{aligned}$$

$$\begin{aligned} \text{l)} \quad & 6^2 : \sqrt{36} + 2 \cdot (2^2 - 2)^2 = \\ & = 36 : 6 + 2 \cdot (4 - 2)^2 = \\ & = 36 : 6 + 2 \cdot 2^2 = \\ & = 36 : 6 + 2 \cdot 4 = \\ & = 6 + 8 = 14 \end{aligned}$$