

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

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

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

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

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

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

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

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

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

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

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

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

$$\begin{aligned} 6) \quad & \boxed{3^2} - \boxed{4^3} + \boxed{5^2} = \\ & = \boxed{9} - \boxed{64} + \boxed{25} = \\ & = \boxed{-55} + \boxed{25} = \\ & = -80 \end{aligned}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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