

A. Operaciones con enteros:

$$a) 3 \cdot (-1) - (-2) \cdot (-2) = -3 - (+4) = -3 - 4 = -7$$

$$b) 1 - 4 \cdot (-3) + (-2) = 1 + 12 - 2 = 11$$

$$c) 3 \cdot [(-4 - 2) + 3(-2) + (-3) \cdot (-4)] = 3 \cdot [-6 + (-6) + (+12)] = 3 \cdot [-6 - 6 + 12] = 3 \cdot [-12 + 12] = 3 \cdot 0 = 0$$

$$d) -2 \cdot \{-1 - 3 \cdot [(-1 - 1) - (-2) + 5(-2)]\} = -2 \cdot \{-1 - 3 \cdot [-2 + 2 - 10]\} = -2 \cdot \{-1 - 3 \cdot [-10]\} = \\ = -2 \cdot \{-1 + 30\} = -2 \cdot \{29\} = -58$$

$$e) -10 \cdot (-1 - 5) - (-5 - 3) : (-2) = -10 \cdot (-6) - (-8) : (-2) = 60 - (+4) = 60 - 4 = 56$$

$$f) \{-34 : [3 \cdot (-3 - 50 : (-6 - 4) - 12 + 3) - 7 + 11] + 5 - 1\} : 6 = \\ = \{-34 : [3 \cdot (-3 - 50 : (-10) - 9) + 4] + 4\} : 6 = \{-34 : [3 \cdot (-3 + 5 - 9) + 4] + 4\} : 6 = \{-34 : [3 \cdot (-7) + 4] + 4\} : 6 = \\ = [-34 : (-21 + 4) + 4] : 6 = [-34 : (-17) + 4] : 6 = (2 + 4) : 6 = 6 : 6 = 1$$

B. Operaciones con potencias

$$a) 5^3 \cdot 5^{-3} = 5^{3+(-3)} = 5^{3-3} = 5^0 = 1$$

$$b) 5^{-3} \cdot 5^5 \cdot 5^{-6} = 5^{-3+5+(-6)} = 5^{-3+5-6} = 5^{-4} = \frac{1}{5^4}$$

$$c) 5^{-3} : 5^5 = 5^{-3-5} = 5^{-8} = \frac{1}{5^8}$$

$$d) (5^5 : 5^{-7}) \cdot 5^{-4} = (5^{5-(-7)}) \cdot 5^{-4} = (5^{5+7}) \cdot 5^{-4} = 5^{12} \cdot 5^{-4} = 5^8$$

$$e) \frac{5^2 \cdot 5^{-3}}{5^{-4} \cdot 5^{-2}} = \frac{5^{2+(-3)}}{5^{-4+(-2)}} = \frac{5^{-1}}{5^{-6}} = 5^{-1-(-6)} = 5^{-1+6} = 5^5$$

$$f) (5^{-3})^{-3} = 5^{-3 \cdot (-3)} = 5^9$$

$$g) [(5^{-3})^2]^{-1} = 5^{-3 \cdot 2 \cdot (-1)} = 5^6$$

$$h) \frac{(5^2)^3 \cdot 5^{-3}}{5^4 \cdot (5^{-2})^2} = \frac{5^{2 \cdot 3} \cdot 5^{-3}}{5^4 \cdot 5^{-2 \cdot 2}} = \frac{5^6 \cdot 5^{-3}}{5^4 \cdot 5^{-4}} = \frac{5^{6-3}}{5^{4-4}} = \frac{5^3}{5^0} = \frac{5^3}{1} = 5^3$$

$$i) \frac{(5^{-2})^3 : 5^{-3}}{5^3 : (5^{-2})^{-2}} = \frac{5^{-2 \cdot 3} : 5^{-3}}{5^3 : 5^{-2 \cdot (-2)}} = \frac{5^{-6} : 5^{-3}}{5^3 : 5^4} = \frac{5^{-6-(-3)}}{5^{3-4}} = \frac{5^{-6+3}}{5^{-1}} = \frac{5^{-3}}{5^{-1}} = 5^{-3-(-1)} = 5^{-3+1} = 5^{-2} = \frac{1}{5^2}$$

$$j) \frac{(7^{-2} \cdot 7^{-3})^{-1} : 7^2}{7^3 \cdot ((7^2)^{-2})^{-1}} = \frac{(7^{-2+(-3)})^{-1} : 7^2}{7^3 \cdot 7^{2 \cdot (-2) \cdot (-1)}} = \frac{(7^{-2-3})^{-1} : 7^2}{7^3 \cdot 7^{-4}} = \frac{(7^{-5})^{-1} : 7^2}{7^{3+(-4)}} = \frac{7^{-5 \cdot (-1)} : 7^2}{7^{-1}} = \frac{7^5 : 7^2}{7^{-1}} = \frac{7^{5-2}}{7^{-1}} =$$

$$= \frac{7^3}{7^{-1}} = 7^{3-(-1)} = 7^{3+1} = 7^4$$