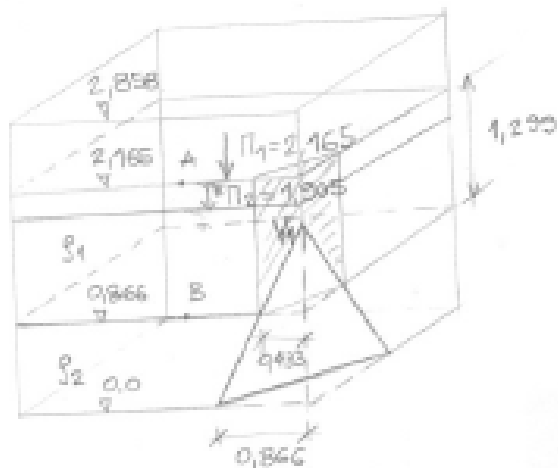


a)



$$a = 0,866 \text{ m}; \rho_1 = 0,8 \text{ kg/dm}^3; \rho_2 = 1 \text{ kg/dm}^3$$

$$p_A = 0$$

$$p_1 = p_A + \rho_1 g z_A = 2,165 \text{ m}$$

$$p_B = \rho_1 g \cdot (p_1 - z_B) = 0,8 \cdot 9,81 \cdot (2,165 - 0,866)$$

$$p_B = 10,19 \text{ kPa}$$

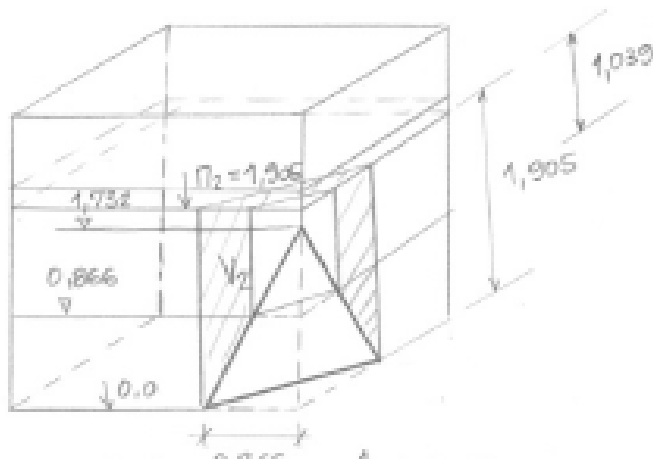
$$p_2 = z_B + \frac{p_B}{\rho_2 g} = 0,866 + \frac{10,19}{1 \cdot 9,81} = 1,905 \text{ m}$$

$$V_{\text{vode prizme}} = \frac{1}{2} \left(\frac{0,866}{2} \right)^2 \cdot 1,299 = 0,122 \text{ m}^3$$

$$V_{\text{vode piramide}} = \frac{1}{3} \cdot \frac{1}{2} \cdot \left(\frac{0,866}{2} \right)^2 \cdot 0,866 = 0,0291 \text{ m}^3$$

$$V_1 = V_{\text{vode prizme}} - V_{\text{vode piramide}} = 0,122 - 0,0291 = 0,0949 \text{ m}^3$$

$$P_{z1} = \rho_1 \cdot g \cdot V_1 = 0,8 \cdot 9,81 \cdot 0,0949 = 744,8 \text{ N}$$



$$V_{\text{velike prizme}} = \frac{1}{2} \cdot 0,866^2 \cdot 1,905 = 0,714 \text{ m}^3$$

$$V_{\text{vode prizme}} = \frac{1}{2} \cdot \left(\frac{0,866}{2} \right)^2 \cdot 1,039 = 0,0994 \text{ m}^3$$

$$V_{\text{velike piramide}} = \frac{1}{3} \cdot \frac{1}{2} \cdot 0,866^2 \cdot 1,732 = 0,216 \text{ m}^3$$

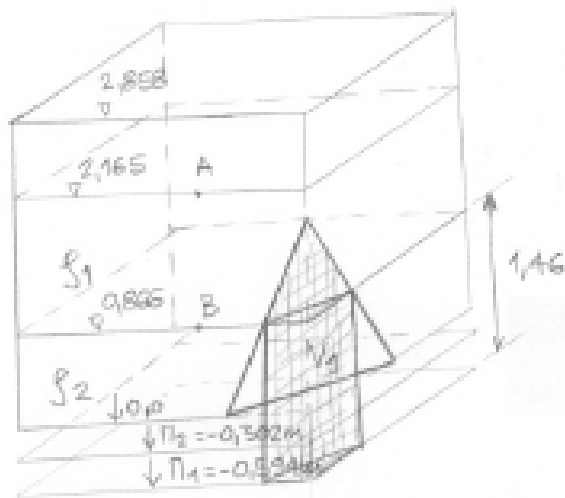
$$V_{\text{zarubljene piramide}} = V_{\text{velike piramide}} - V_{\text{vode piramide}} = 0,216 - 0,0291 = 0,189 \text{ m}^3$$

$$V_2 = V_{\text{velike prizme}} - V_{\text{vode prizme}} - V_{\text{zarubljene piramide}} = 0,714 - 0,0994 - 0,189 = 0,428 \text{ m}^3$$

$$P_{z2} = \rho_2 \cdot g \cdot V_2 = 1 \cdot 9,81 \cdot 0,428 = 4199 \text{ N}$$

$$P = P_{z1} + P_{z2} = 744,8 + 4199 = 4944 \text{ N} = 4,944 \text{ kN}$$

b)



$$p_A = - \frac{37,3+6}{2} = -21,65 \text{ kPa}$$

$$\Pi_1 = z_A + \frac{p_A}{\rho_1 g} = 2,165 - \frac{21,65}{0,8 \cdot 9,81} = -0,594 \text{ m}$$

$$p_B = \rho_1 g \cdot (\Pi_1 - z_B) = 0,8 \cdot 9,81 \cdot (-0,594 - 0,866)$$

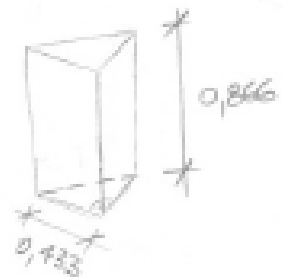
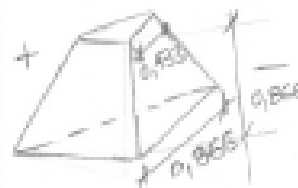
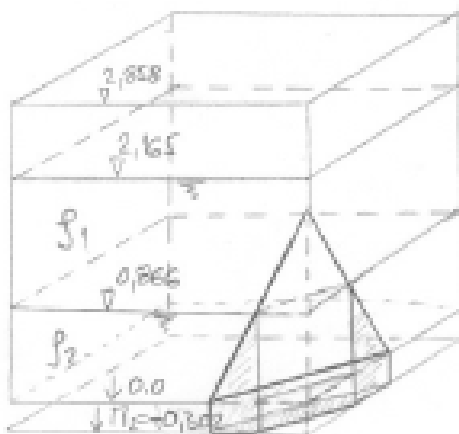
$$p_B = -11,46 \text{ kPa}$$

$$\Pi_2 = z_B + \frac{p_B}{\rho_2 g} = 0,866 - \frac{11,46}{1 \cdot 9,81} = -0,302 \text{ m}$$

$$V_{\text{wale prizme}} = \frac{1}{2} \cdot \left(\frac{0,866}{2}\right)^2 \cdot 1,46 = 0,139 \text{ m}^3$$

$$V_1 = V_{\text{wale prizme}} + V_{\text{wale piramide}} = 0,139 + 0,0271 = 0,166 \text{ m}^3$$

$$P_{Z1} = \rho_1 g \cdot V_1 = 0,8 \cdot 9,81 \cdot 0,166 = 1,303 \text{ kN}$$



$$a = 0,866 \cdot \sqrt{2} = 1,225 \text{ m}$$

$$b = 0,433 \cdot \sqrt{2} = 0,612 \text{ m}$$

$$h = 0,433^2 - \left(\frac{0,612}{2}\right)^2 = 0,0938 \text{ m}$$

$$V_{\text{četrročlana prizma}} = \frac{a+b}{2} \cdot h \cdot H = \frac{1,225+0,612}{2} \cdot 0,0938 \cdot 0,302 = 0,026 \text{ m}^3$$

$$V_{\text{wale prizma}} = \frac{1}{2} \cdot 0,433^2 \cdot 0,866 = 0,0812 \text{ m}^3$$

$$V_2 = V_{\text{četrročlana prizma}} + V_{\text{čarubljene piram.}} - V_{\text{wale prizma}} = 0,026 + 0,216 - 0,0812 = 0,161 \text{ m}^3$$

$$P_{Z2} = \rho_2 g \cdot V_2 = 1 \cdot 9,81 \cdot 0,161 = 1,577 \text{ kN}$$

$$P_Z = P_{Z1} + P_{Z2} = 1,303 + 1,577 = 2,88 \text{ kN} \quad \downarrow$$