$$V_2 = \iint\limits_{\substack{1 \le \frac{x^2}{a^2}+\frac{y^2}{b^2} \le 2 \\ 0 \le y \le x}} c\sqrt{\frac{x^2}{a^2}+\frac{y^2}{b^2}-1}\,dx\,dy = \left[\begin{array}{ll} x = a\rho\cos\varphi & 0 \le \varphi \le \operatorname{arctg}\frac{a}{b} \\ y = b\rho\sin\varphi & \\ J = ab\rho & 1 \le \rho \le \sqrt{2} \end{array}\right] =$$

$$= c\iint\limits_{\substack{1 \le \rho \le \sqrt{2} \\ 0 \le \varphi \le \operatorname{arctg}\frac{a}{b}}} \sqrt{\rho^2-1}\,ab\rho\,d\rho\,d\varphi = ab\,c\int_0^{\operatorname{arctg}\frac{a}{b}} d\varphi \cdot \int_1^{\sqrt{2}} \rho\sqrt{\rho^2-1}\,d\rho = \dots = \frac{1}{3}ab\,c\operatorname{arctg}\frac{a}{b}$$

$$\boxed{V = V_1 - V_2 = \frac{5}{3}\operatorname{arctg}\left(\frac{a}{b}\right)}$$

б) $\boxed{b = a}$

$$z = c\cdot\left(3 - \frac{x^2+y^2}{a^2}\right), \quad p = \frac{\partial z}{\partial x} = -\frac{2c}{a^2}x, \quad q = \frac{\partial z}{\partial y} = -\frac{2c}{a^2}y, \quad \sqrt{1+p^2+q^2} = \sqrt{1+\frac{4c^2}{a^2}(x^2+y^2)}$$

$$P_1 = \iint\limits_{D} \sqrt{1+\frac{4c^2}{a^4}(x^2+y^2)}\,dx\,dy$$

D: $x^2+y^2 = 2a^2$

$$= \int_0^{\frac{\pi}{4}} d\varphi \cdot \int_0^{a\sqrt{2}} \rho\sqrt{1+\frac{4c^2}{a^4}\rho^2}\,d\rho = \dots \Rightarrow$$

$x = \rho\cos\varphi$ $\quad 0 \le \rho \le a\sqrt{2}$

$y = \rho\sin\varphi$

$|J| = \rho$ $\quad 0 \le \varphi \le \frac{\pi}{4}$

$$P_1 = \frac{\pi a^4}{48c^2}\left[\left(1+\frac{8c^2}{a^2}\right)^{\frac{3}{2}} - 1\right]$$