$$\Pi_\Delta = \oiint_{\Omega} \left(\frac{3x^2y^2}{z} - 2x^3\right)dy\,dz + \left(\frac{2x^3}{z} + 3y^3\right)dx\,dz + \left(z^3 - \frac{x^3y^2}{z^2}\right)dx\,dy =$$

$$= -\iint_D \left(\left(\frac{3x^2y^2}{\sqrt{1-x^2-y^2}} - 2x^3\right), \left(\frac{2x^3y}{-\sqrt{1-x^2-y^2}} + 3y^2\right), \left(-\left(\sqrt{1-x^2-y^2}\right)^3 - \frac{x^3y^4}{1-x^2-y^2}\right)\right) \cdot$$

$$\cdot \left(\frac{-x}{\sqrt{1-x^2-y^2}}, \frac{-y}{\sqrt{1-x^2-y^2}}, 1\right)dx\,dy =$$

$$= -\iint_D \left(\frac{3x^3y^2}{1-x^2-y^2} + \frac{2x^3}{\sqrt{1-x^2-y^2}} + \frac{2x^3y^2}{1-x^2-y^2} - \frac{3y^3}{\sqrt{1-x^2-y^2}} - \sqrt{(1-x^2-y^2)^3} - \frac{x^3y^4}{1-x^2-y^2}\right)dx\,dy \Rightarrow$$

$$\Pi_\Delta = \iint_D \left(-\frac{4x^3y^2}{1-x^2-y^2} + \frac{3y^4-2x^4}{\sqrt{1-x^2-y^2}} - \sqrt{(1-x^2-y^2)^3}\right)dx\,dy$$

$$\Pi = \Pi_\Gamma + \Pi_\Delta$$

$$\Pi = 2\cdot\oiint_D \left(\frac{3y^4-2x^4}{\sqrt{1-x^2-y^2}} + \sqrt{(1-x^2-y^2)^3}\right)dx\,dy = \begin{pmatrix} x = \rho\cos\varphi & 0 \le \varphi \le 2\pi \\ y = \rho\sin\varphi & 0 \le \rho \le 1 \\ J = \rho & \end{pmatrix} =$$

$$= 2\cdot\int_0^{2\pi} d\varphi \cdot \int_0^1 \rho\cdot\left(\frac{3\cdot\rho^4\cdot\sin^4\varphi - 2\cdot\rho^4\cdot\cos^4\varphi}{\sqrt{1-\rho^2}} + \sqrt{(1-\rho^2)^3}\right)d\rho$$

$$= 2\cdot\int_0^{2\pi} d\varphi \cdot \int_0^1 \frac{\rho^5(3\sin^4\varphi - 2\cos^4\varphi + 1) + \rho - 2\rho^3}{\sqrt{1-\rho^2}}\,d\rho$$

$$= 2\cdot\int_0^{2\pi} d\varphi \cdot \left[(3\sin^4\varphi - 2\cos^4\varphi + 1)\underbrace{\int_0^1 \frac{\rho^5}{\sqrt{1-\rho^2}}\,d\rho}_{I_1} - 2\underbrace{\int_0^1 \frac{\rho^3}{\sqrt{1-\rho^2}}\,d\rho}_{I_2} + \underbrace{\int_0^1 \frac{\rho}{\sqrt{1-\rho^2}}\,d\rho}_{I_3}\right]$$

$$I_1 = \int_0^1 \frac{\rho^5}{\sqrt{1-\rho^2}}\,d\rho = \begin{pmatrix} \rho = \sin t \\ d\rho = \cos t\,dt \end{pmatrix} = \int \frac{\sin^5 t}{\cos t}\cdot\cos t\,dt = \frac{\sin^6 t}{6} = \frac{1}{6}\cdot\sin^6 \arcsin\rho\Big|_0^1 = \frac{1}{6}$$

$$I_2 = \int_0^1 \frac{\rho^3}{\sqrt{1-\rho^2}}\,d\rho = (-\,''\,-\,''\,-) = \int \frac{\sin^3 t}{\cos t}\cdot\cos t\,dt = \frac{\sin^4 t}{4} = \frac{1}{4}\sin^4 \arcsin\rho\Big|_0^1 = \frac{1}{4}$$

$$I_3 = \int_0^1 \frac{\rho}{\sqrt{1-\rho^2}}\,d\rho = -\frac{1}{2}\int_0^1 \frac{d(1-\rho^2)}{\sqrt{1-\rho^2}} = -\frac{1}{2}\int_0^1 (1-\rho^2)^{-\frac{1}{2}}\,d(1-\rho^2) = -\frac{1}{2}\cdot 2\sqrt{1-\rho^2}\Big|_0^1 = 1 \quad ?\ \left(\frac{1}{2}\right)$$

$$= 2\cdot\int_0^{2\pi}\left(\frac{1}{6}\sin^4\varphi - 2\cos^4\varphi + 1 - \frac{1}{2} + \frac{1}{2}\right)d\varphi = 2\int_0^{2\pi}\left(\frac{1}{48}(3 - 4\cos 2\varphi + \cos 4\varphi) - \right.$$

$$\left. - \frac{1}{4}(3 + 4\cos 2\varphi + \cos 4\varphi) + 1\right)d\varphi$$

$$= 2\int_0^{2\pi}\left(\frac{1}{16} - \frac{1}{12}\cos 2\varphi + \frac{1}{48}\cos 4\varphi - \frac{3}{4} - \cos 2\varphi - \frac{1}{4}\cos 4\varphi + 1\right)d\varphi =$$

$$= \int_0^{2\pi}\left(\frac{5}{8} - \frac{13}{6}\cos 2\varphi - \frac{11}{2}\cos 4\varphi\right)d\varphi = \left(\frac{5}{8}\varphi - \frac{13}{6}\sin 2\varphi - \frac{11}{2}\sin 4\varphi\right)\Big|_0^{2\pi} = \frac{5\pi}{4}$$

$$\Rightarrow \boxed{\Pi = \frac{5\pi}{4}}$$