

$$z^2 = x^2 + y^2$$

$$z_x = \frac{1}{2\sqrt{x^2+y^2}} \times 2x$$

$$z_y = \frac{y}{\sqrt{x^2+y^2}}$$

$$\iint (x^2+y^2) \sqrt{1+(z_x)^2+(z_y)^2} \, dx \, dy$$

$$\iint (x^2+y^2) \sqrt{1 + \frac{x^2}{x^2+y^2} + \frac{y^2}{x^2+y^2}} \, dx \, dy$$

$$\Rightarrow \iint \sqrt{\frac{2(x^2+y^2)}{x^2+y^2}} \times (x^2+y^2) \, dx \, dy$$

$$\Rightarrow \sqrt{2} \iint (x^2+y^2) \, dx \, dy$$

$$x^2+y^2=1$$

$$\Rightarrow \sqrt{2} \int_0^{2\pi} \int_0^1 r^3 \, dr \, d\theta$$

$$0 \Rightarrow r=0$$

$$\Rightarrow \sqrt{2} \times 2\pi \times \frac{1}{4} \times 1 \Rightarrow$$

$$\boxed{\frac{\sqrt{2}\pi}{2}}$$