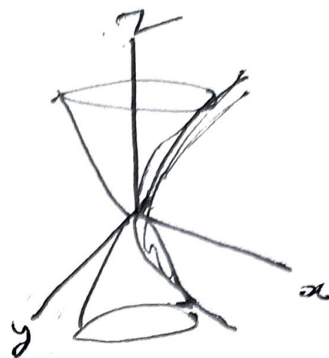


$$Z = \sqrt{x^2 + y^2}$$

$$Z_x = \frac{1}{2} \frac{x \cdot 2x}{\sqrt{x^2 + y^2}}$$

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



Surface area - $2 \iint_A \sqrt{1 + \frac{x^2}{x^2 + y^2} + \frac{y^2}{x^2 + y^2}} dx dy$

$$A: x^2 + y^2 = 2y$$

$$\Rightarrow 2\sqrt{2} \iint_A dx dy$$

$$A: x^2 + (y-1)^2 = 1$$

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

$$\Rightarrow \boxed{2\sqrt{2}\pi} \text{ A}$$

