

$$\begin{aligned}
z = f(x, y) &= xy \text{ with } 0 \leq x^2 + y^2 \leq 121, \text{ so } f_x = y, f_y = x \Rightarrow \\
A(S) &= \iint_D \sqrt{1 + y^2 + x^2} dA = \int_0^{2\pi} \int_0^{11} \sqrt{r^2 + 1} r dr d\theta \\
&= \int_0^{2\pi} \left[\frac{1}{3} (r^2 + 1)^{3/2} \right]_{r=0}^{r=11} d\theta = \int_0^{2\pi} \frac{1}{3} (122 \sqrt{122} - 1) d\theta \\
&= \frac{2\pi}{3} (122 \sqrt{122} - 1)
\end{aligned}$$