(7) $z = y^2 - x^2$

$\frac{\partial z}{\partial x} = -2x \quad \frac{\partial z}{\partial y} = 2y$

$x^2+y^2=1 \quad x^2+y^2=4$

$r=1 \quad r=2$

$r \in [1,2]$

$\theta \in [0, 2\pi]$

$\sqrt{1+4x^2+4y^2} = \sqrt{1+4r^2}$

$SA = \int_0^{2\pi} \int_1^2 r\sqrt{1+4r^2}\, dr\, d\theta$

$= \int_0^{2\pi} d\theta \int_1^2 r\sqrt{1+4r^2}\, dr$

$= 2\pi \cdot \int_1^2 r\sqrt{1+4r^2}\, dr$

$u = 1+4r^2$

$du = 8r\,dr$

$\frac{1}{8} du = r\,dr$

$2\pi \cdot \int_1^2 \frac{1}{8} u^{1/2} du$

$2\pi \cdot \frac{1}{12} \left[(1+4r^2)^{3/2}\right]_1^2$

$= \boxed{\frac{\pi}{6}\left(17^{3/2} - 5^{3/2}\right)}$

(9) $z = xy$

$\frac{\partial z}{\partial x} = y \quad \frac{\partial z}{\partial y} = x$

$x^2+y^2=1$

$r=1 \quad r \in [0,1]$

$\theta \in [0, 2\pi]$

$\sqrt{1+x^2+y^2} = \sqrt{1+r^2}$

$SA = \int_0^{2\pi} \int_0^1 r\sqrt{1+r^2}\, dr\, d\theta$

$= \int_0^{2\pi} d\theta \int_0^1 r\sqrt{1+r^2}\, dr$

$= 2\pi \cdot \int_0^1 r\sqrt{1+r^2}\, dr$

$u = 1+r^2$

$du = 2r\,dr$

$\frac{1}{2} du = r\,dr$

$2\pi \cdot \int_0^1 \frac{1}{2} u^{1/2} du$

$2\pi \cdot \frac{1}{3}\left[(1+r^2)^{3/2}\right]_0^1$

$= \boxed{\frac{2\pi}{3}\left(2^{3/2} - 1\right)}$