A)

$z = 1 + y \qquad z = x^2 + y^2$

$\gamma(t) = (\cos t,\ \operatorname{sen} t,\ 1 + \operatorname{sen} t)$

$0 \leq t \leq 2\pi$

B) Curva Parametrica a coordenadas

$r = r(t) \qquad \theta = \theta(t) \qquad \alpha \leq t \leq \beta$

$x(t) = r(t)\cos\theta(t),\ y(t) = r(t)\operatorname{sen}\theta(t),\ \alpha \leq t \leq \beta$

$$\frac{dx}{dt} = \cos(\theta)\frac{dr}{dt} - (r\operatorname{sen}\theta)\frac{d\theta}{dt}$$

$$\frac{dy}{dt} = \operatorname{sen}(\theta)\,dr + (r\cos\theta)\frac{d\theta}{dt}$$

$$ds = \sqrt{\left(\frac{dr}{dt}\right)^2 + \left(r\frac{d\theta}{dt}\right)^2}\,dt$$

$$ds = \sqrt{\left(\frac{dr}{d\theta}\right)^2 + r^2}\,d\theta$$