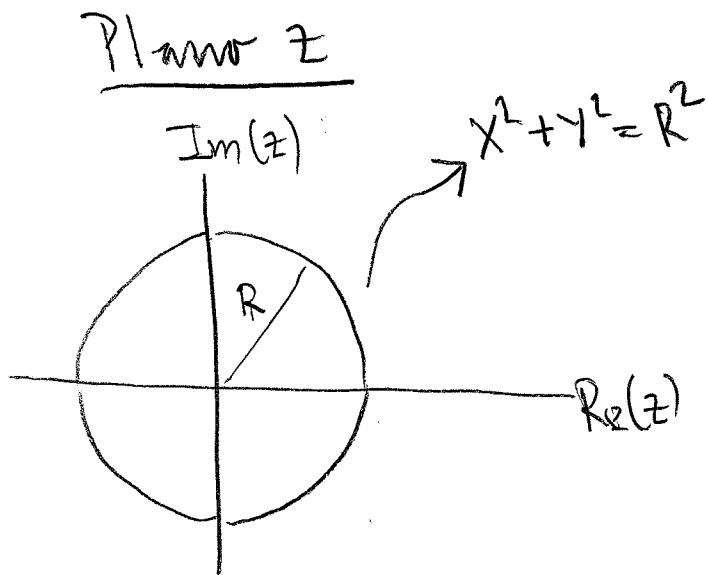


Transformación  $w = z^2$  de  $|z| = R$



$$w = (x+iy)(x+iy)$$

$$= x^2 - y^2 + i2xy$$

$$\Downarrow$$

$$u = x^2 - y^2$$

$$v = 2xy$$

entonces

$$u = x^2 - y^2 = (R^2 - y^2) - y^2 = R^2 - 2y^2$$

$$u = R^2 - 2y^2 \Downarrow; \quad 2y^2 = \frac{v^2}{4x^2}$$

$$y^2 = \frac{1}{2} (R^2 - u)$$

también

$$u = x^2 - (R^2 - x^2) = 2x^2 - R^2$$

$$\Downarrow$$

$$x^2 = \frac{1}{2} (u + R^2)$$

luego  $v = 2xy \Rightarrow v^2 = 4x^2y^2$

$$v^2 = 4 \frac{1}{2} (R^2 - m) \frac{1}{2} (m + R^2)$$

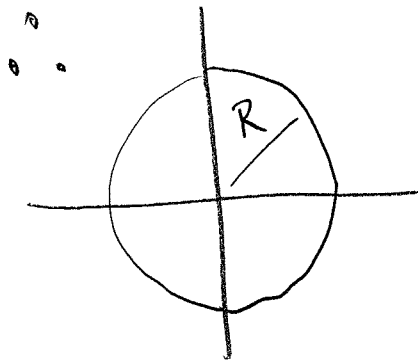
$$v^2 = (R^2 - m)(m + R^2)$$

$$v^2 = \cancel{m}R^2 + R^4 - m^2 - \cancel{m}R^2$$

$$v^2 + m^2 = (R^2)^2$$

$$|w| = R^2 //$$

plano  $z$



$$w = z^2$$



plano  $w$

