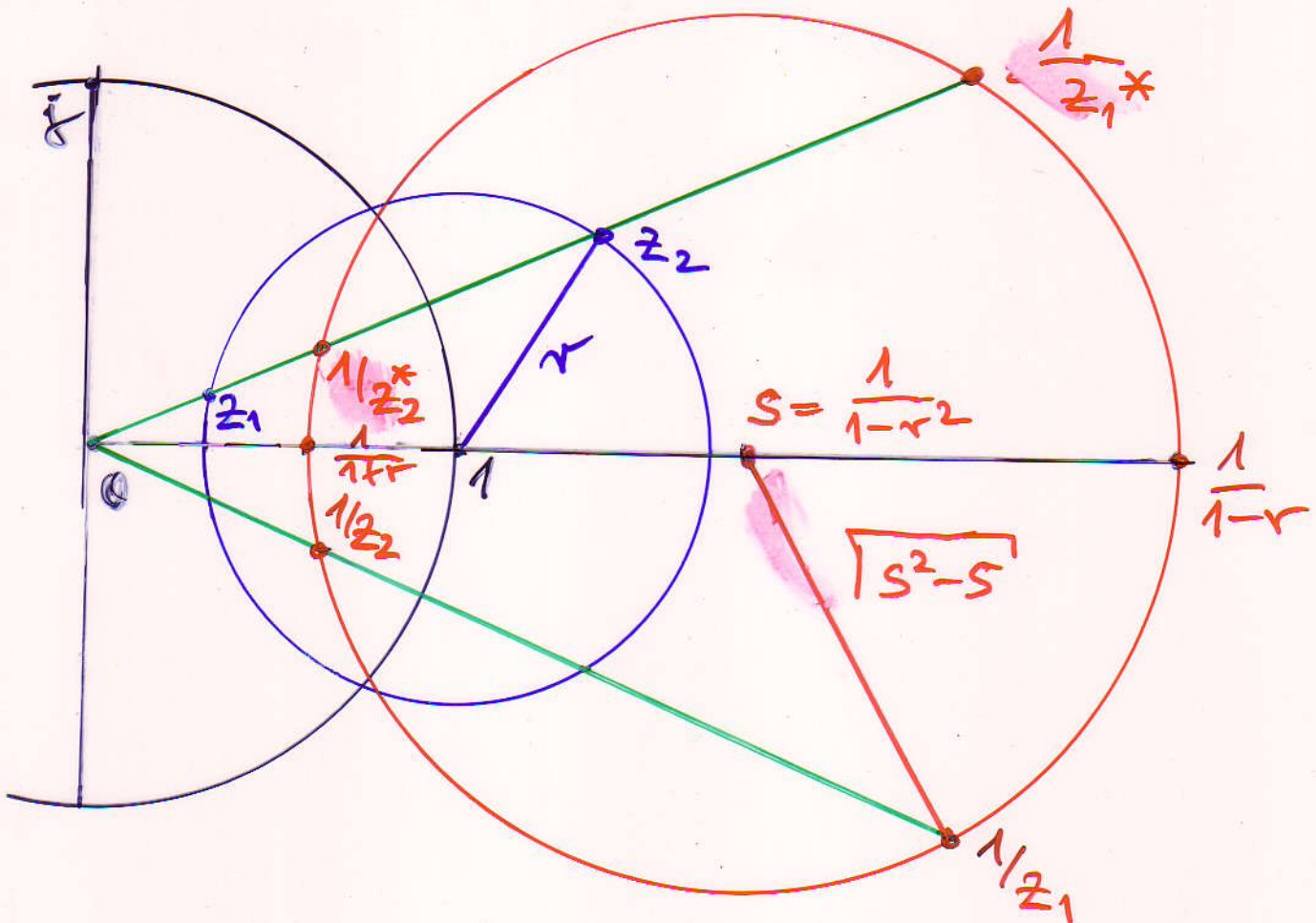


$$0 \notin K \iff K' \neq 0$$



$$|z-1| = r$$

$$w = \frac{1}{z}, \quad z = \frac{1}{w}$$

$$\bullet ww^*$$

$$s = \frac{1}{1-r^2}, \quad \bullet s$$

$$zz^* - z - z^* + 1 - r^2 = 0$$

$$\frac{1}{ww^*} - \frac{1}{w} - \frac{1}{w^*} + 1 - r^2 = 0$$

$$(1-r^2)ww^* - w - w^* + 1 = 0$$

$$ww^* - sw - sw^* + s = 0$$

$$(w-s)(w^*-s) - s^2 + s = 0$$

$$|w-s|^2 = s^2 - s > 0$$

$$s^2 > 0 \quad 1-r^2 < 1 \implies s < s^2$$