FORMA TRIGONOMETRICA ED ESPONENZIALE IN C
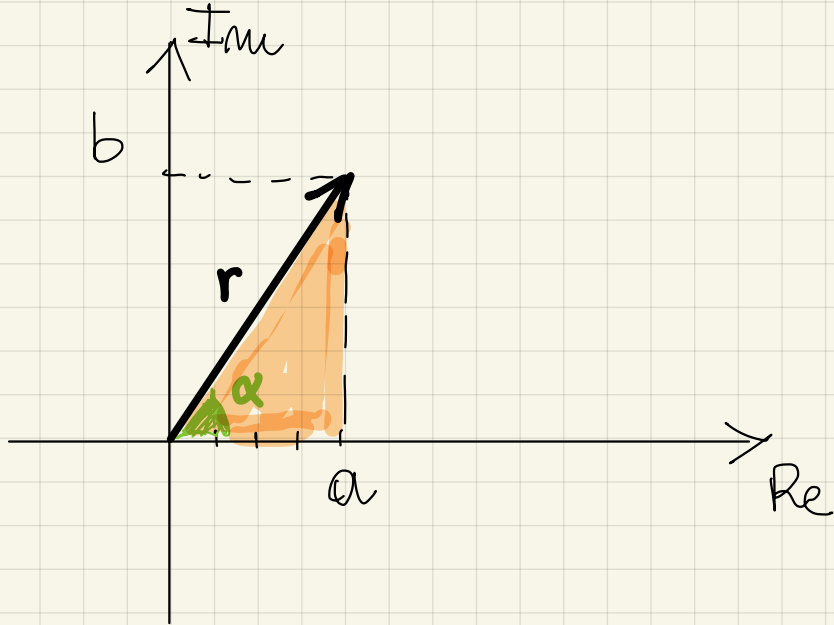
DIAGRAMMA DI GAUSS

$$z = (a; b) = a + ib$$

$$a = r \cdot \cos\alpha$$
$$b = r \; \sin\alpha$$

dove $r = \sqrt{a^2 + b^2}$

$$\downarrow$$

$$a + ib = r\cos\alpha + i \, r \sin\alpha$$

$$z = r(\cos\alpha + i \sin\alpha)$$

$$tg\,\alpha = \frac{b}{a}$$

ESEMPIO: $\sqrt{3} + i$ $a = \sqrt{3}$ $b = 1$ $\alpha \Rightarrow tg\,\alpha = \frac{b}{a}$

$$\alpha = arctg \, \frac{1}{\sqrt{3}} = arctg \, \frac{\sqrt{3}}{3} \quad \rightarrow \quad \alpha = \frac{\pi}{6}$$

$$z = r \left(\cos \frac{\pi}{6} + i \, \text{sin} \, \frac{\pi}{6} \right) \quad \text{dove} \quad r = \sqrt{3 + 1} \quad = 2$$

$$z = 2 \left(\frac{\sqrt{3}}{2} + i \, \frac{1}{2} \right) = \left(\sqrt{3} + i \right) \quad ?$$

FORMA ESPONENZIALE $\qquad z = e^{i\alpha}$

$$\boxed{e^{i\alpha} = r \left(\cos \alpha + i \, \text{sin} \, \alpha \right)}$$

dove e numero di EULERO

$\sim$ 2,7....