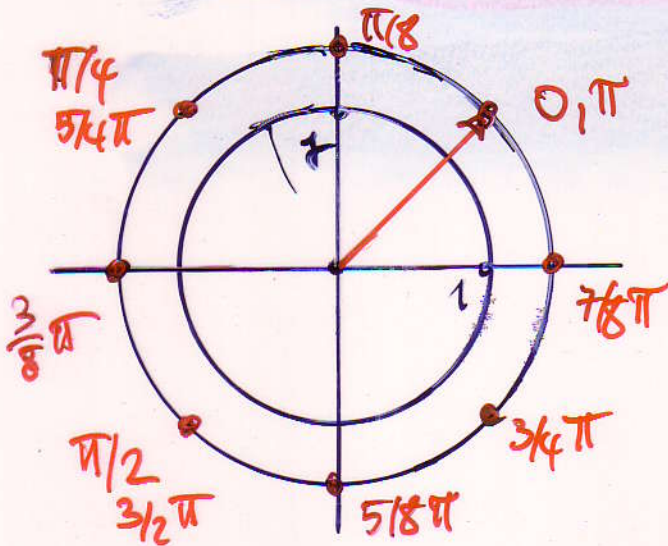


komplexe Zeitfunktion

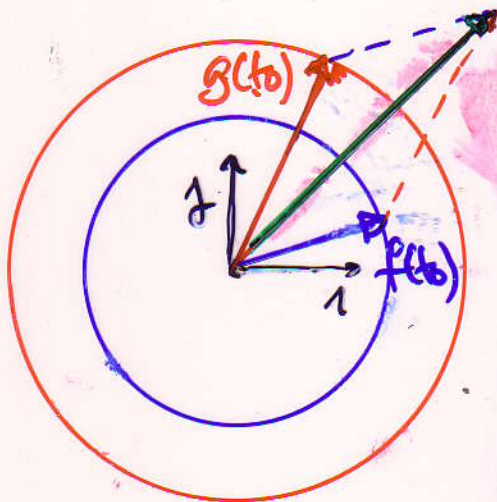
$$f(t) = r e^{j(\omega t + \varphi)} = r e^{j\varphi} e^{j\omega t} \\ = f(t_0) e^{j\omega(t-t_0)}$$



$$(1+j) e^{j2t} \\ = \sqrt{2} e^{j\pi/4} e^{j2t} \\ = \sqrt{2} e^{j(2t + \pi/4)} \\ = \sqrt{2} e^{j2(t + \pi/2)}$$

$$a, b \in \mathbb{R} \Rightarrow a \cos \omega t + b \sin \omega t = \operatorname{Re} (a - bj) e^{j\omega t}$$

Bew. $(a - bj) e^{j\omega t} = (a - bj) (\cos \omega t + j \sin \omega t) \\ = a \cos \omega t + b \sin \omega t + j(a \sin \omega t - b \cos \omega t)$



$$(f+g)(t_0) \\ = f(t_0) + g(t_0)$$

$$f(t) = r e^{j\varphi} e^{j\omega t} \\ g(t) = s e^{j\psi} e^{j\omega t}$$

$$t_0 = 0$$

$$(f+g)(t) = (r e^{j\varphi} + s e^{j\psi}) e^{j\omega t}$$