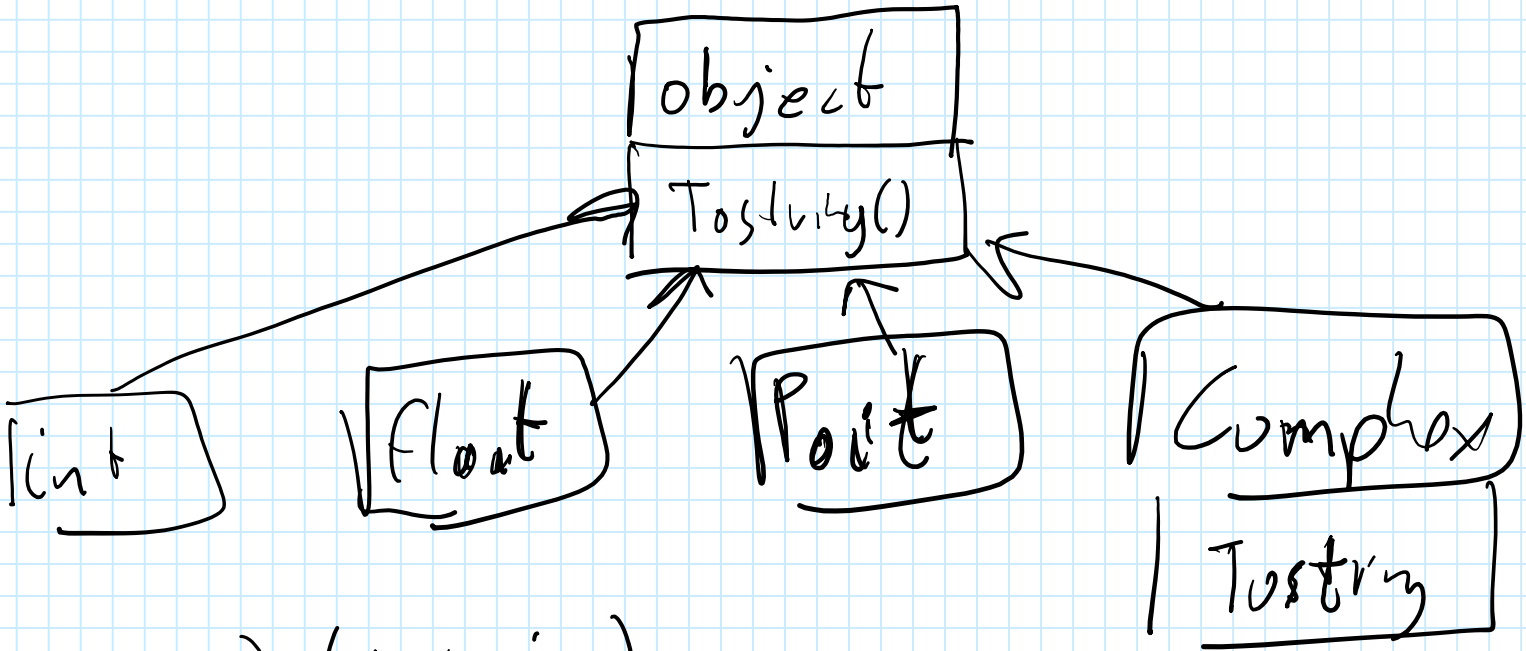


$(1+j2)\cdot(4+j5)=$

$3\angle 30^\circ * 4\angle 10^\circ = 12\angle 40^\circ$

Komplexe Rechnung

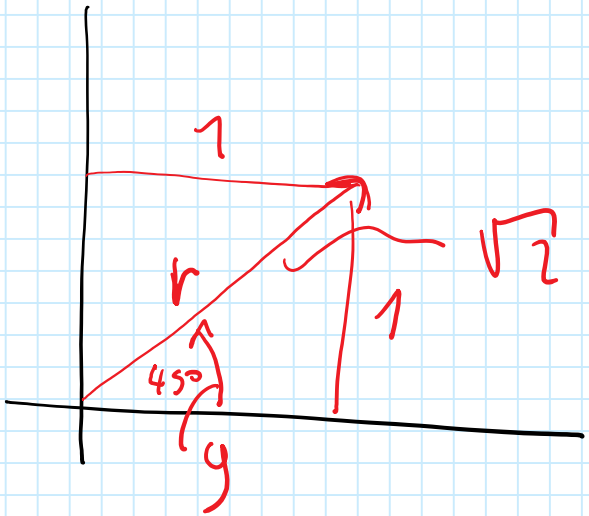
$(3+j\cdot 4)+(2-j\cdot 1)=5+j\cdot 3$

Gey: re, im

$re+j\cdot im$

$1+j\cdot 1 = \sqrt{2}\angle 45°$

$r=\sqrt{re^2+im^2}$; $\varphi = \arctan\left(\frac{im}{re}\right)$



Gey: r, φ

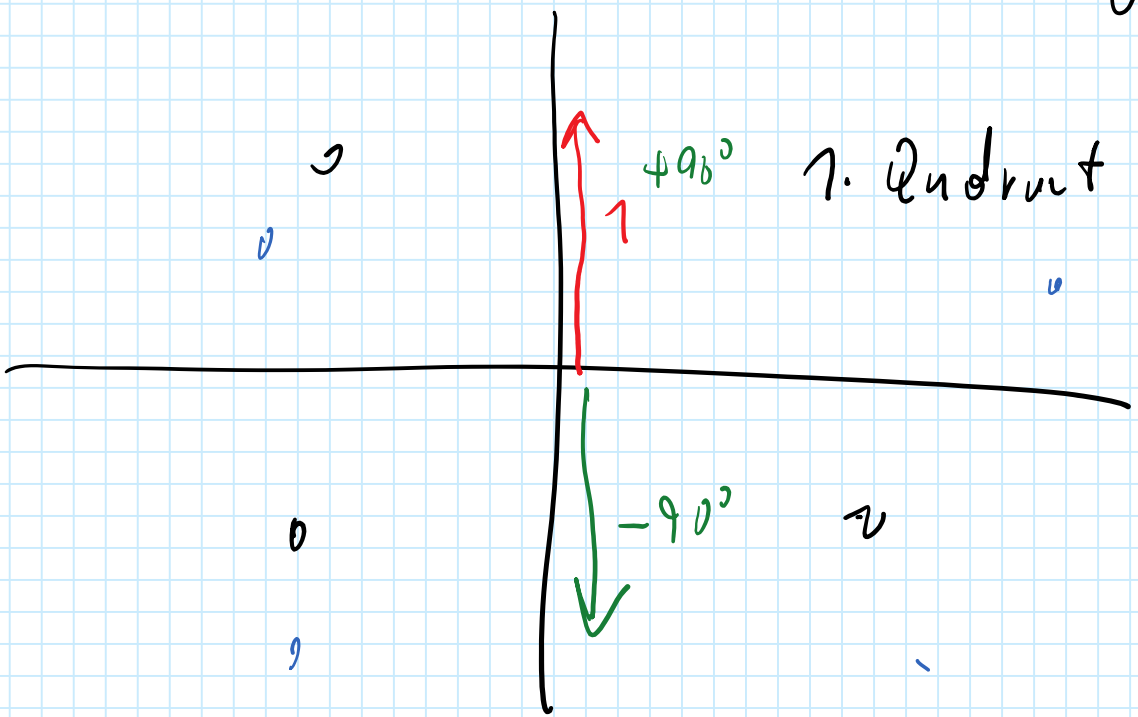
$re = r\cdot\cos(\varphi)$; $im = r\cdot\sin(\varphi)$

$rad\cdot\frac{180}{\pi} = Grad$

$Grad\cdot\frac{\pi}{180} = rad$

S24

$0 + j * 1$



1. Quadrant

Multiplikation

$(1+j2)*(3+j4) = 1\cdot3 + j\,2\cdot3 + j\,4\cdot2 = 8$

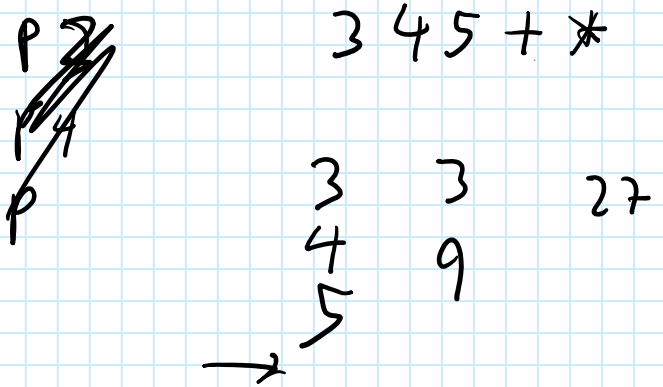
$-5 + j\,14$

infix

$3*(4+5) =$

Postfix

3 4 5 + *



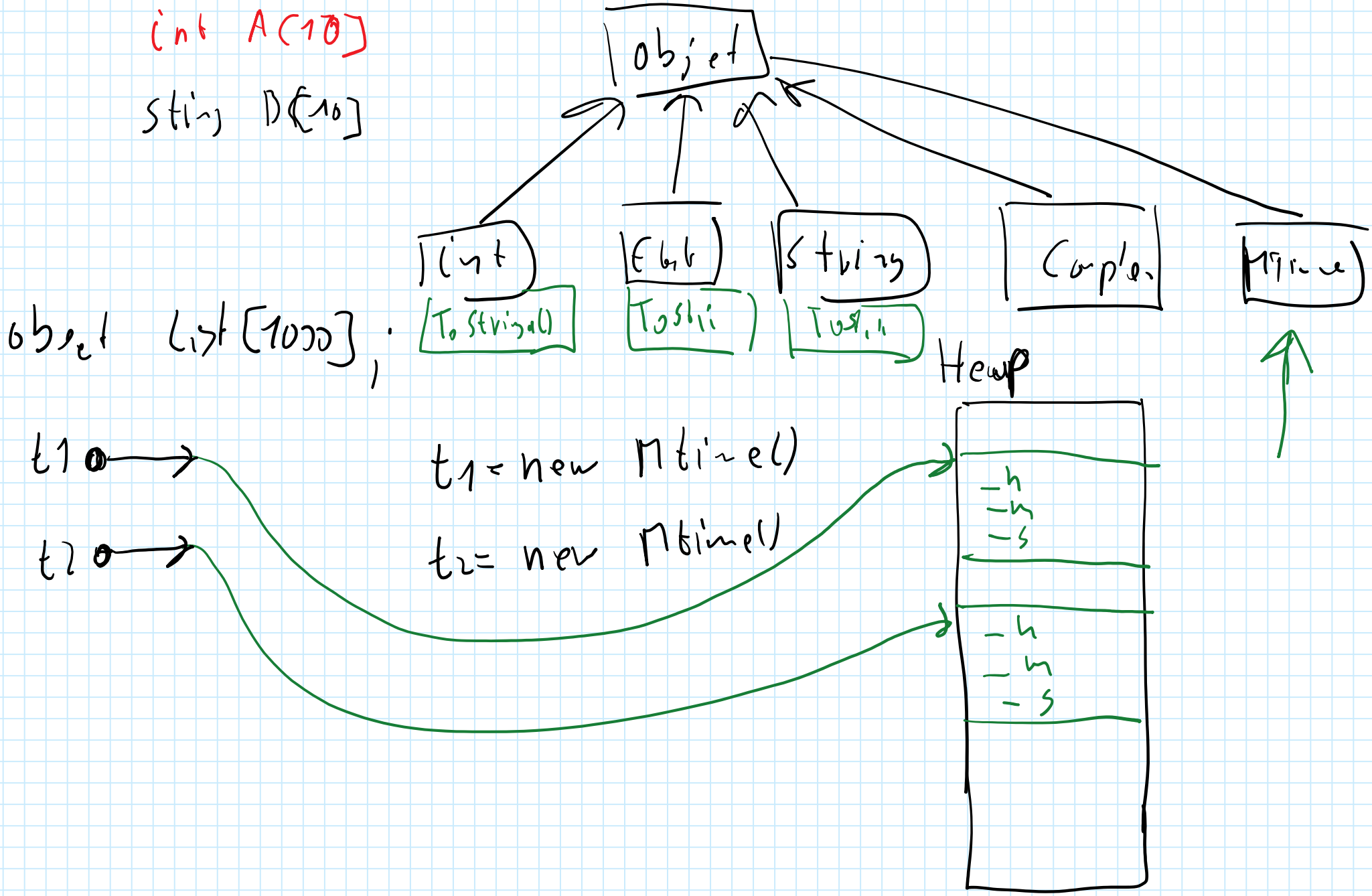
Programmieren ist eine Fähigkeit, die am besten durch Übung und Ausprobieren und nicht aus Büchern erworben wird.

Bei dem Versuch, solche Maschinen zu

Alan Turing 1950
(Erfinder des Computers)

int A[10]

String B[10]



$3\angle 30^\circ * 2\angle 20^\circ = 6\angle 50^\circ$

Sin, Cos in 5° Schritten erzeugen

$(a_r + j a_i) \cdot (b_r + j b_i) =$

$(a_r \cdot b_r - a_i \cdot b_i) + j(a_i \cdot b_r + a_r b_i)$

$Re(a) = \cos(\varphi)$

$\cos(6^\circ)$

$\cos(5^\circ)$

$\cos(10^\circ)$

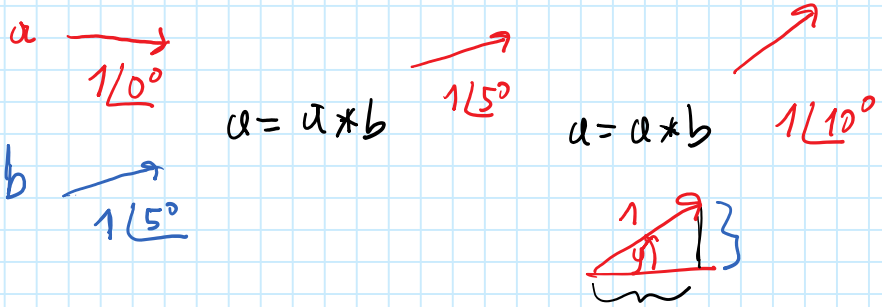
$\vdots$

$Im(\varphi) = \sin(\varphi)$

$\sin(0^\circ)$

$\sin(5^\circ)$

$\sin(7^\circ)$



S29a

$$(1 + j \cdot 2) * (3 + j \cdot 4) =$$

$$= 1 \cdot 3 + j 1 \cdot 4 + j \cdot 2 \cdot 3 - 2 \cdot 4 =$$

$$= -5 + j \cdot 10$$

$$(a_r + j a_i) \cdot (b_r + j \cdot b_i) =$$

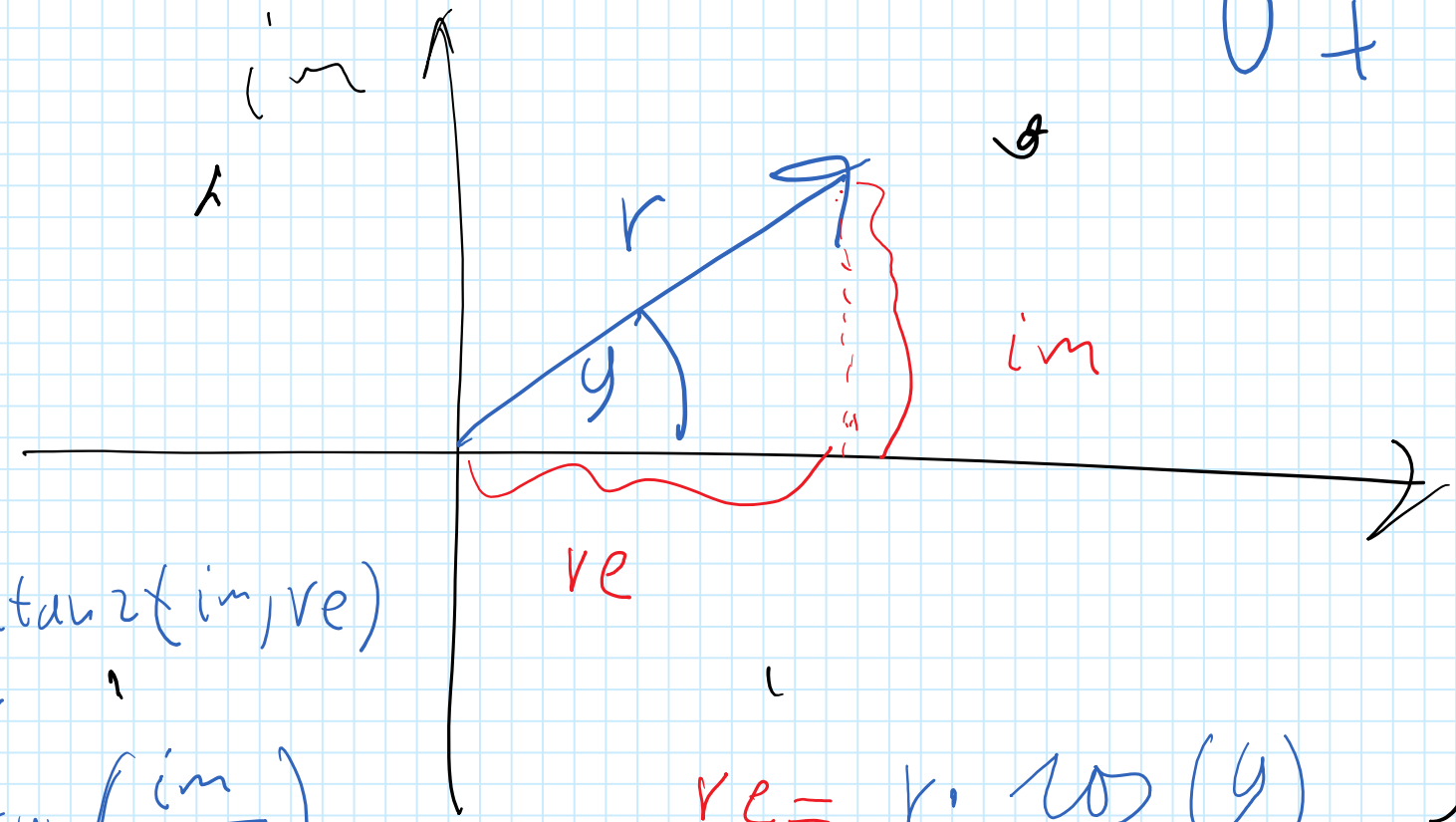
$$= a_r \cdot b_r + j \cdot a_r \cdot b_i + j a_i \cdot b_r - a_i b_i =$$

$$= (a_r \cdot b_r - a_i \cdot b_i) + j * (a_r \cdot b_i + a_i b_r)$$

C_r C_i

operator *

$$(Ar + j \cdot Ai) \cdot (Br + j \cdot Bi) = (Ar \cdot Br - Ai \cdot Bi) + j \cdot (Ai \cdot Br + Ar \cdot Bi)$$



$0 + 1 \cdot j$

$\varphi = \operatorname{atan2}(im, re)$

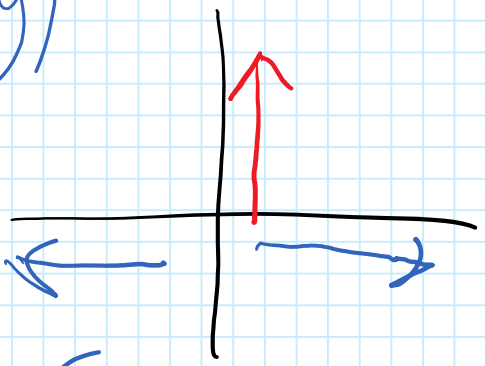
$\varphi = \operatorname{atan}\left(\frac{im}{re}\right)$

$re = r \cdot \cos(\varphi)$

$im = r \cdot \sin(\varphi)$

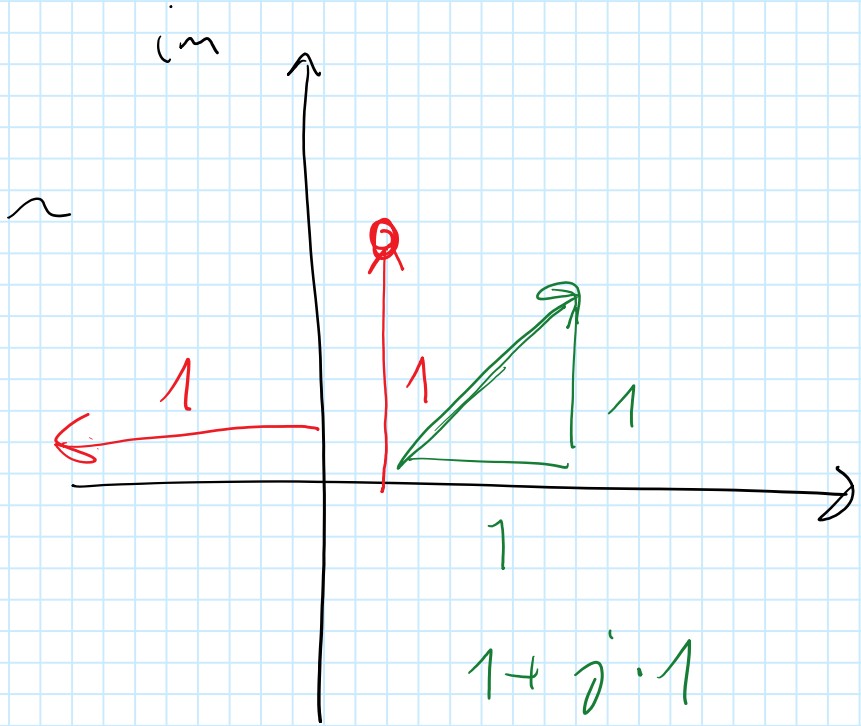
$1 \times j$

$r = \sqrt{re^2 + im^2}$



AsPolar

$1 + 0 \cdot j$



$0 + j \cdot 1$

$1 \angle 90°$

$1 + j \cdot 1$

$-1 + 0 \cdot j$

$1 \angle 180°$

$2 \angle 20° * 3 \angle 30° = 6 \angle 50°$ $\sqrt{2} \angle 45°$

$1 \angle 0°$ $1 \angle 10°$ $10°$ $20°$ $30°$