

Komplexe Funktionen SS 2010
 Lektoren:
 Dr. Stegmann, Dr. Müller II
 Himmels, J. J. Müller, K. Müller, F. Müller, B. Müller
 G. Müller, K. Müller, L. Müller, M. Müller, N. Müller, O. Müller, P. Müller, Q. Müller, R. Müller, S. Müller, T. Müller, U. Müller, V. Müller, W. Müller, X. Müller, Y. Müller, Z. Müller
 Sprachkurse: Fr. 10:00-11:00, Sa. 10:00-11:00, So. 10:00-11:00

Skulpturen:
 $\sqrt{-1} = i$
 $a \cdot z + (a+i)(a+iy) = (a^2 - a) + i(a^2 + ay)$

Substanz:
 $z = x+iy, w = a+ib \Rightarrow z \cdot w = (x+iy)(a+ib) = (ax-by) + i(ay+bx)$
 $z \cdot \bar{z} = (x+iy)(x-iy) = x^2 + y^2 = |z|^2 = |z|^2$
 $z \cdot \bar{w} = (x+iy)(a-ib) = (xa+by) + i(ya-xb)$
 $\frac{z}{w} = \frac{z \cdot \bar{w}}{w \cdot \bar{w}} = \frac{(xa+by) + i(ya-xb)}{a^2 + b^2}$

Addition:
 $(a+ib) + (c+id) = (a+c) + i(b+d)$
 $(a+ib) \cdot (c+id) = (ac-bd) + i(ad+bc)$
 $(a+ib) \cdot (c-id) = (ac+bd) + i(-ad+bc)$

Division:
 $\frac{z}{w} = \frac{z \cdot \bar{w}}{w \cdot \bar{w}} = \frac{(xa+by) + i(ya-xb)}{a^2 + b^2}$

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$\sqrt[n]{r} = \sqrt[n]{|r|} e^{i \frac{\arg r}{n}}$
 $e^{i\theta} = \cos \theta + i \sin \theta$
 $a = |a| e^{i\phi}$

$z = x+iy, w = a+ib \Rightarrow z \cdot w = (ax-by) + i(ay+bx)$
 $z \cdot \bar{z} = x^2 + y^2 = |z|^2$
 $z \cdot \bar{w} = (x+iy)(a-ib) = (xa+by) + i(ya-xb)$

Addition:
 $(a+ib) + (c+id) = (a+c) + i(b+d)$
 $(a+ib) \cdot (c+id) = (ac-bd) + i(ad+bc)$
 $(a+ib) \cdot (c-id) = (ac+bd) + i(-ad+bc)$

Division:
 $\frac{z}{w} = \frac{z \cdot \bar{w}}{w \cdot \bar{w}} = \frac{(xa+by) + i(ya-xb)}{a^2 + b^2}$

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$w = e^z$

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In \mathbb{R} Umkehr $f(x)$

$f(z) = e^z$
 $z = \ln w$
 $w = e^z$
 $z = \ln w$

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