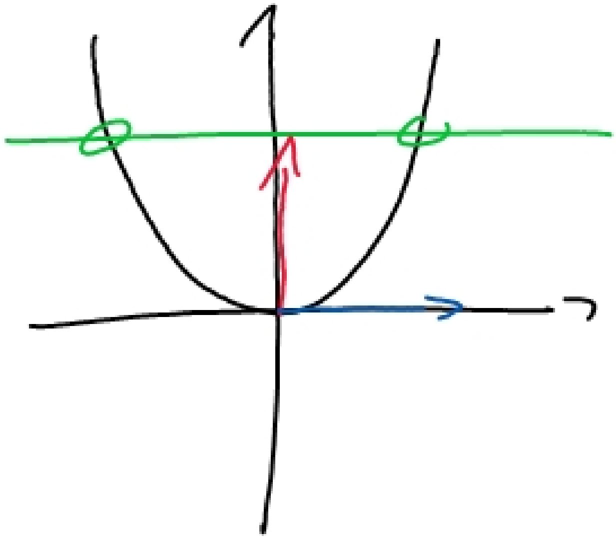
$$A = \{(x;y) \in \mathbb{R} \times \mathbb{R} \mid y = x^2\}$$



umkehrbar $\Rightarrow$ bijektiv

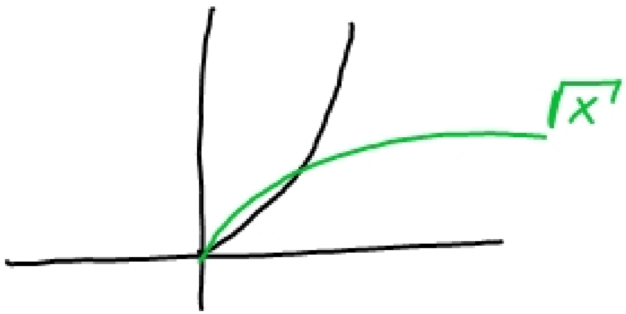
$\Leftarrow$ surjektiv

$\Rightarrow$ injektiv

$\Downarrow$

Parallele zur x-Achse einmal schneiden

$$A = \{(x;y) \in \mathbb{R}_0^+ \times \mathbb{R}_0^+ \mid y = x^2\}$$



Absorptionsgesetz: $\underline{A} \cup (A \cap B) = A$

$\Downarrow$ neutrale Erweiterung

$(A \cap \Omega) \cup (A \cap B)$

Distributiv	$(A \cup A) \cap (A \cup B)$
idempotent	$A \cap (A \cup B)$
Distributiv	$(A \cap A) \cup (A \cap B)$
idempotent	$A \cup (A \cap B)$
Distributiv	$A \cap (\Omega \cup B)$
idempotent	$A \cap \Omega$
neutrale	A

S 36 Nr. 3

$$\overline{\overline{A \cup B} \cup \overline{A \cup \overline{B}}}$$

de Morgan

$$\overline{\overline{A \cup B}} \cap \overline{\overline{A \cup \overline{B}}}$$

doppelte Negation

$$(A \cup B) \cap (A \cup \overline{B})$$

Distributiv

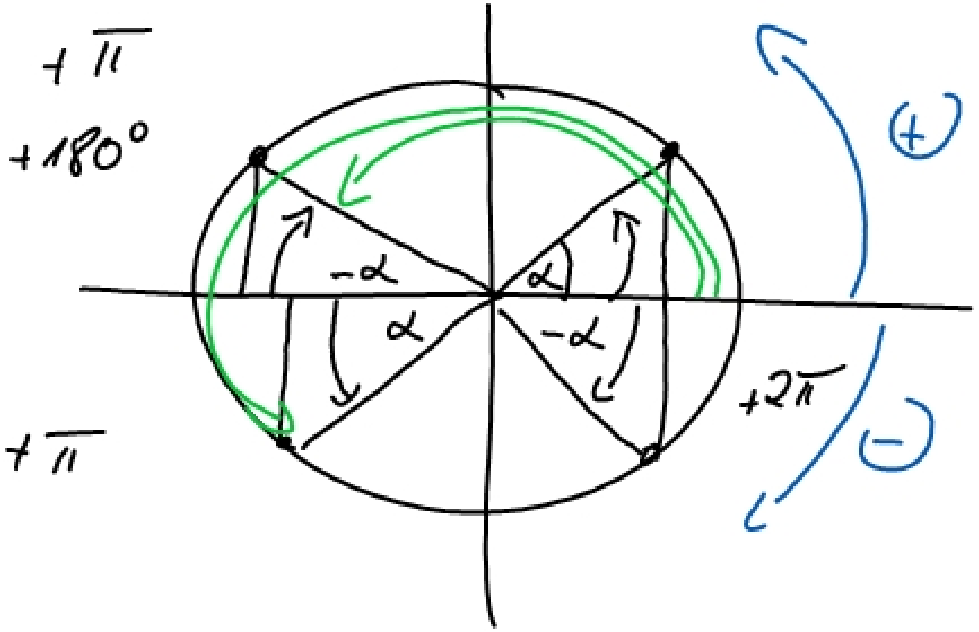
$$A \cup (B \cap \overline{B})$$

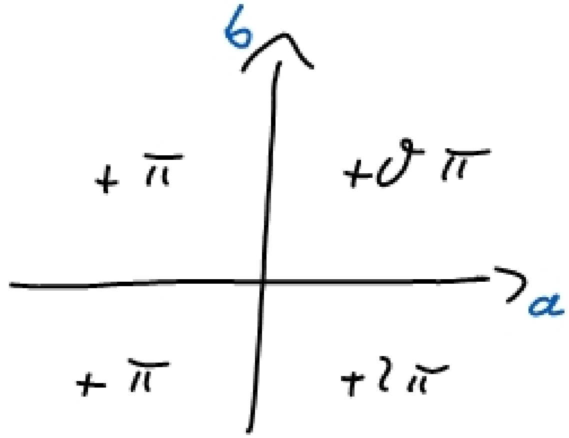
Komplement

$$A \cup \{\}$$

neutral

$$A$$





$$i^{10} = i^4 \cdot i^4 \cdot i^2 = 1 \cdot 1 \cdot i^2 = (-1)$$

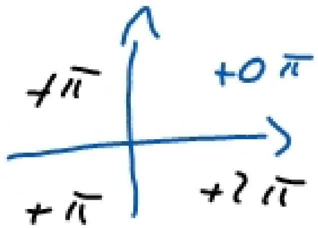
$$i^2 \cdot i^2 = (-1) \cdot (-1) = 1$$

Bsp.: $2i \cdot (3i + 2) - (4i + 1)(3i - 5)$

$6i^2 + 4i - [12i^2 - 20i + 3i - 5]$

$-6 + 4i - (-17 - 17i)$

$z = 11 + 21i$



$r = \sqrt{11^2 + 21^2} \rightarrow \alpha = \mathrm{arc\,tan}\ 21/11 + 0\pi$

$(3i - 4)\,2i - 3i \cdot (2i + 5)(i - 2)$

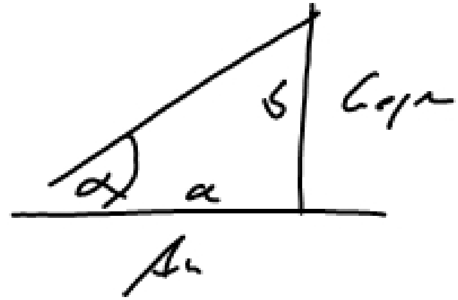
$6i^2 - 8i - 3i \cdot (2i^2 - 4i + 5i - 10)$

$-6 - 8i - 3i \cdot (-12 + i)$

$-6 - 8i + 36i - 3i^2 = -3 + 28i$

$\alpha = \mathrm{arc\,tan}\left(-\frac{28}{3}\right) + \pi$

$$(4i-3)^2 = (4i)^2 - 2\cdot 4i\cdot 3 + 3^2$$



$$= -16 - 24i + 9$$

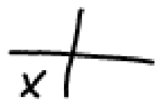
$$= -7 - 24i$$

$$(3i-4):(1-3i) = \frac{3i-4}{\underset{a-b}{1-3i}} \cdot \frac{1+3i}{\underset{a+b}{1+3i}}$$

Konjugiert komplexe Zahl

$$(a+b)(a-b) = a^2 - b^2$$

$$\frac{(3i-4)(1+3i)}{\underset{a^2-b^2}{1^2-(3i)^2}} = \frac{3i+9i^2-4-12i}{1-(-9)} = \frac{-13-9i}{10}$$



$$z = -\frac{13}{10} - \frac{9}{10}i \qquad \alpha = \arctan \frac{9}{13} + \pi$$

$$\frac{(2i-1)^2}{2+i} - \frac{4i-3}{3i+1}$$

$$\Rightarrow \frac{4i^2-4i+1}{2+i} \cdot \frac{2-i}{2-i} = \frac{(-3-4i)(2-i)}{4-i^2}$$

$$\frac{-6+3i-8i+4i^2}{5} = \frac{-10-5i}{5} = -2-i$$

$$\frac{4i-3}{3i+1} \cdot \frac{3i-1}{3i-1} = \frac{12i^2-4i-9i+3}{9i^2-1} = \frac{-9-13i}{-10}$$

$$-2-i-(0{,}9+1{,}3i) = -2{,}9-2{,}3i$$

$$\Rightarrow \arctan\frac{2{,}3}{2{,}9} + \pi$$