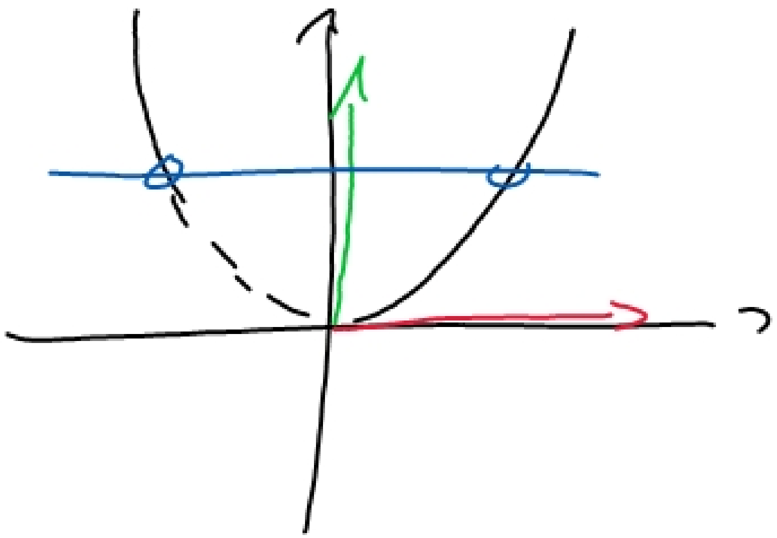
$\pi = \{(x;y) \in \mathbb{R} \times \mathbb{R} \mid y = x^2\}$



bijektiv

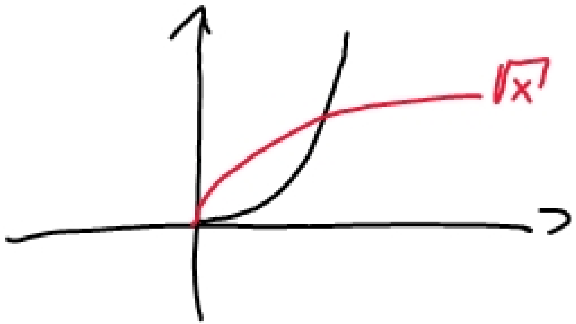
IN

Parallelen x-Achse

surjektiv

injektiv

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



Absorptionsgesetz $A \cap (A \cup B) = A$

Distributiv	$(A \cap A) \cup (A \cap B)$	$\Rightarrow$ neutrale Erweiterung
idempotent	$A \cup (A \cap B)$	$(A \cup \{\}) \cap (A \cup B)$
Distributiv	$(A \cup A) \cap (A \cup B)$	
idempotent	$A \cap (A \cup B)$	
Distributiv	$A \cup (\{\} \cap B)$	
idempotent	$A \cup \{\}$	
neutral	A	q.e.d.

S36 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

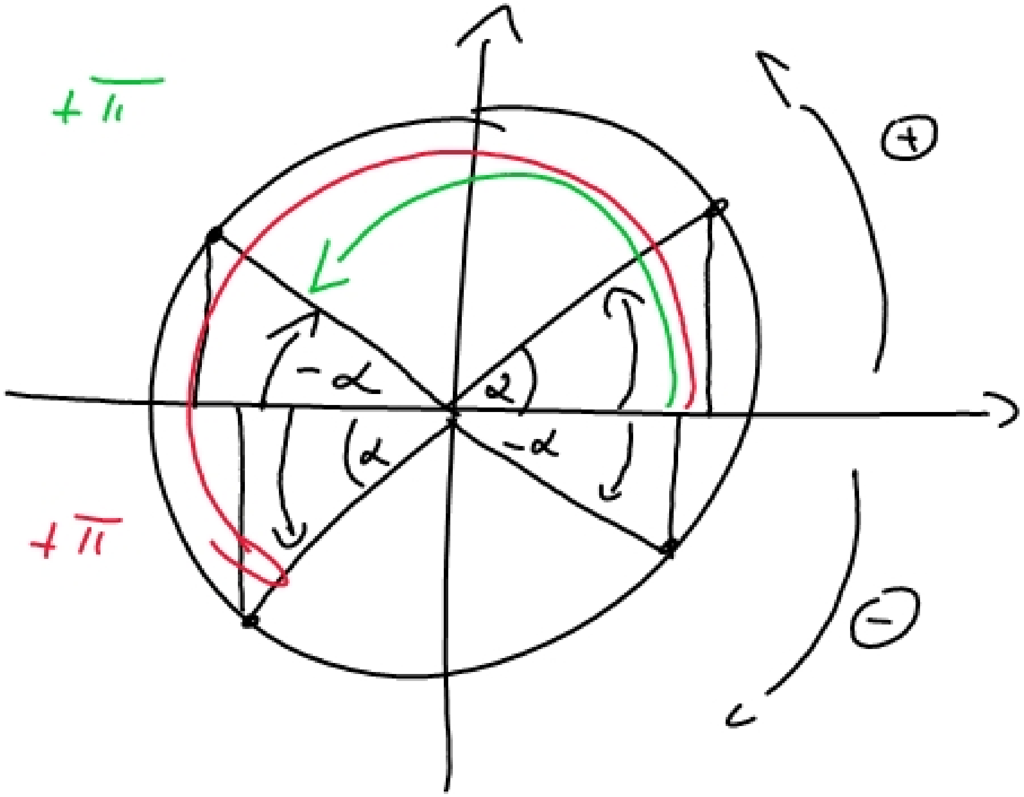
$$A \cup (B \cap \overline{B})$$

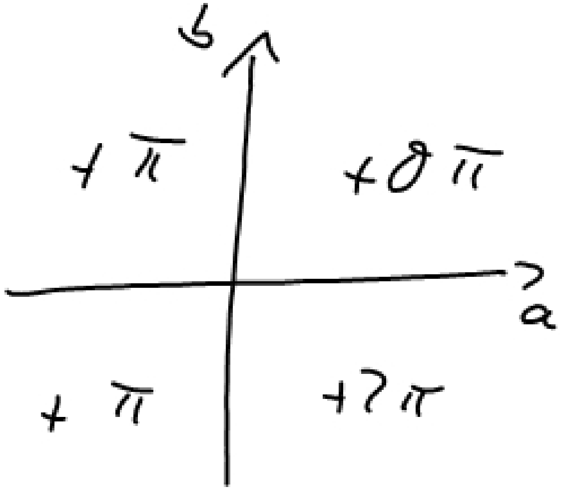
Komplement

$$A \cup \{\}$$

neutral

$$A$$





$$\sqrt{-1} = i \qquad i^4 = i^2 \cdot i^2 = (-1)\,(-1) = 1$$

$$i^{11} = i^4 \cdot i^4 \cdot i^3 = 1 \cdot 1 \cdot i^2 \cdot i = -i$$

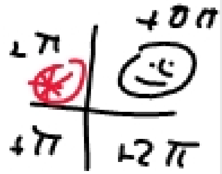
Bsp: $3i(4i+5) - 2i \cdot (3i+5)(2i-1)$; $i^2 = -1$

$12i^2 + 15i - 2i[6i^2 - 3i + 10i - 5]$

$-12 + 15i - 2i \cdot (-11 + 7i)$

$-12 + 15i + 22i - 14i^2 = 2 + 37i$

$\alpha = \arctan\left(\frac{37}{2}\right) + 0\pi$

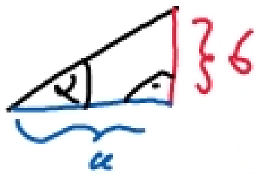


$2i(3-2i) + i \cdot [(6i-1)(3-2i)]$

$6i - 4i^2 + i \cdot (18i - 12i^2 - 3 + 2i)$

$6i + 4 + i \cdot (9 + 20i)$

$6i + 4 + 9i - 20$



$\tan\alpha = \frac{b}{a}$

$\alpha = \arctan b/a$

$z = -16 + 15i$

$r = \sqrt{16^2 + 15^2}$ $\qquad \alpha = \arctan\left(-\frac{15}{16}\right) + \pi$

$$(2i-3)^2 \neq 4i^2 + 9$$

$$\hookrightarrow (2i)^2 - 2\cdot 2i \cdot 3 + 3^2 = 4i^2 - 12i + 9$$

$$= 5 - 12i$$

$$\frac{3i-5}{1+3i} \cdot \frac{1-3i}{1-3i} = \frac{(3i-5)\cdot(1-3i)}{1^2-(3i)^2}$$

$a+b$ $\qquad$ $a-b$

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

$$\hookrightarrow \frac{3i - 9i^2 - 5 + 15i}{1-(-9)} = \frac{4+18i}{10} = \frac{4}{10} + \frac{18}{10} i$$

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

$$\frac{9-6i+i^2}{2i+1} \cdot \frac{2i-1}{2i-1} = \frac{(8-6i)(2i-1)}{4i^2-1}$$

$$\frac{16i-8-12i^2+6i}{-5} = \frac{4+22i}{5}$$

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

$$\frac{8+44i-1+13i}{10} = \frac{7+57i}{10} = \frac{7}{10} + \frac{57}{10}i$$