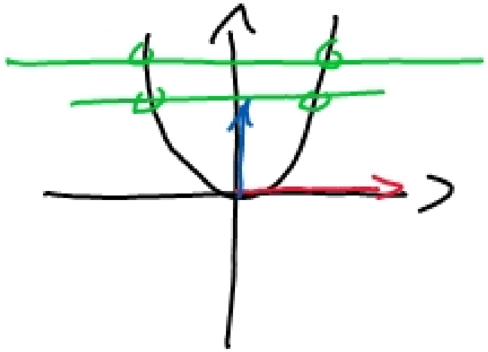
$\# = \{ (x;y) \in \mathbb{R} \times \mathbb{R} \mid y = x^2 \}$



bijektiv

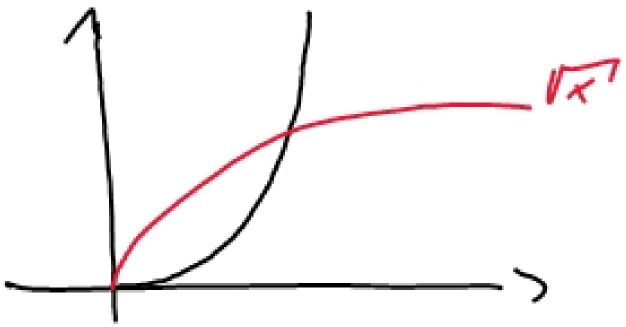
W

Paralle zu x-Achse schneidet einmal

surjektiv

injektiv

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



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

Distribution: $(A \cup A) \cap (A \cup B)$ => neutrale Erweiterung $(A \cap \Omega) \cup (A \cap B)$

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

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

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

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

idempotent $A \cap \Omega$

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

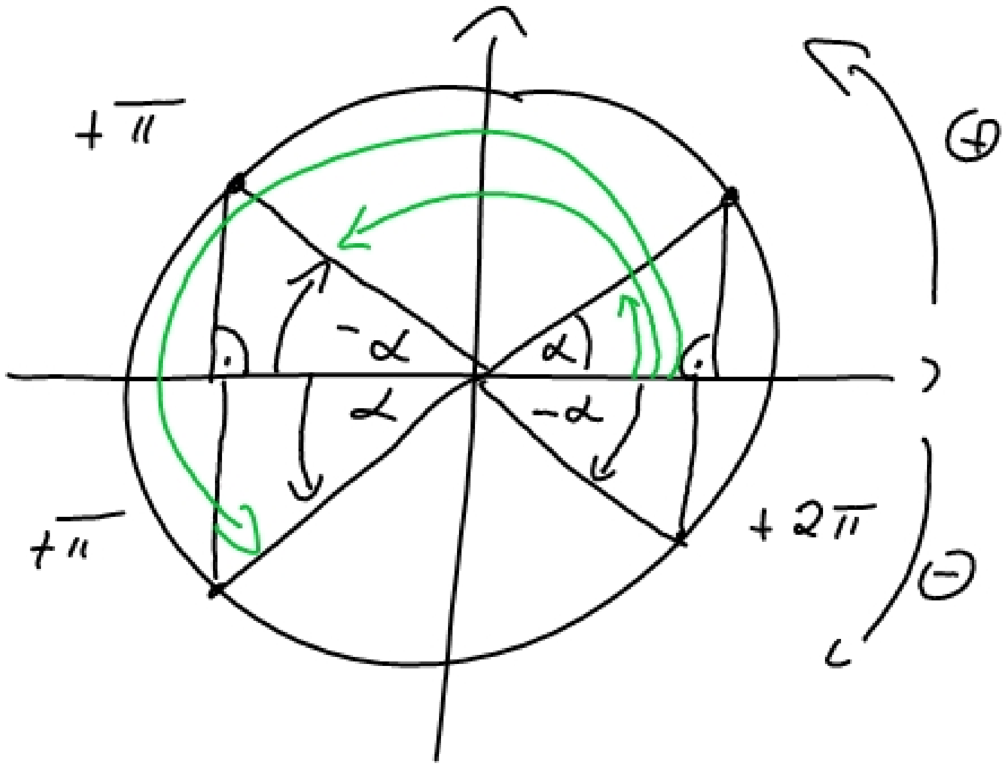
$$A \cup (B \cap \overline{B})$$

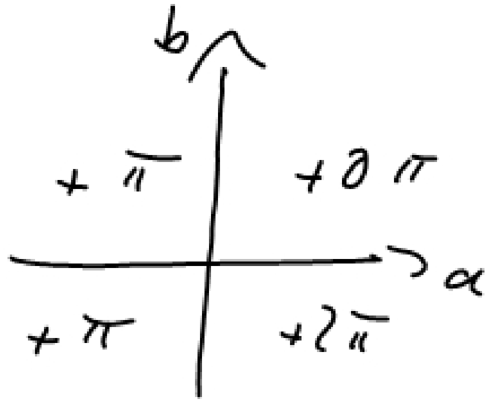
Komplement

$$A \cup \{\}$$

neutral

$$A$$





$$\sqrt{-16} = \sqrt{16} \cdot \sqrt{-1}$$
$$= 4i$$

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

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

$$i^{67} = i^{64} \cdot i^3 = 1^{16} \cdot i^3 = -i$$

$$2i\cdot(5i+1) - 2i\cdot[(3i-2)(2i+4)] \quad ; \quad i=\sqrt{-1}$$

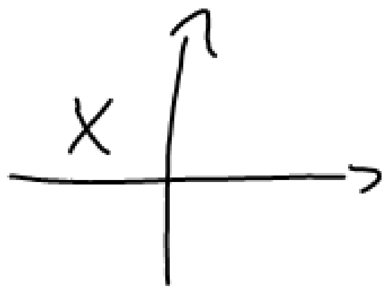
$$10i^2 + 2i - 2i\cdot(6i^2+12i-4i-8)$$

$$-10 + 2i - 2i\cdot(-14+8i)$$

$$-10 + 2i + 28i - 16i^2 = 6 + 30i$$

$$\alpha = \arctan\left(\frac{30}{6}\right) + 0\pi$$

$$3i\cdot(4-2i) + i\cdot[(3i-1)(2i+5)]$$



$$12i - 6i^2 + i\cdot(6i^2+15i-2i-5)$$

$$12i + 6 + i\cdot(-11+13i)$$

$$12i + 6 - 11i + 13i^2 = -7 + i$$

$$\alpha = \arctan\left(-\frac{1}{7}\right) + \pi$$

$(3i)^2 = 9i^2 = -9$

$(3i+2)^2 \ ↯ \ (3i)^2 + 2^2$

$\hookrightarrow (3i)^2 + 2\cdot 3i \cdot 2 + 2^2 = -5 + 12i$

$(3i-2):(2+i) = \underbrace{\frac{3i-2}{2+i}}_{a+b} \cdot \underbrace{\frac{2-i}{2-i}}_{a-b}$

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

$\frac{(3i-2)(2-i)}{\underbrace{2^2 - i^2}_{a^2 - b^2}} = \frac{6i - 3i^2 - 4 + 2i}{5} = \frac{-1+8i}{5}$

$= -\frac{1}{5} + \frac{8}{5} i$

$\frac{8/5}{-1/5}$

$8/5 \cdot \left(-\frac{5}{1}\right) = -\frac{8}{1}$

$\alpha = \arctan\left(-\frac{8}{1}\right) + \pi$

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

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

$$= \frac{16-8i-12i+6i^2}{5} = \frac{10-20i}{5}$$

$$* \quad \frac{4i-3}{3i-1} \cdot \frac{3i+1}{3i+1}$$

$$= \frac{12i^2+4i-9i-3}{9i^2-1} = \frac{-15-5i}{-10}$$

$$\frac{10-20i}{5} + \frac{-15-5i}{-10} = \frac{20-40i+15+5i}{10} = \frac{35}{10} - \frac{35}{10}i$$

$$\alpha = \arctan(-1) + 2\pi$$