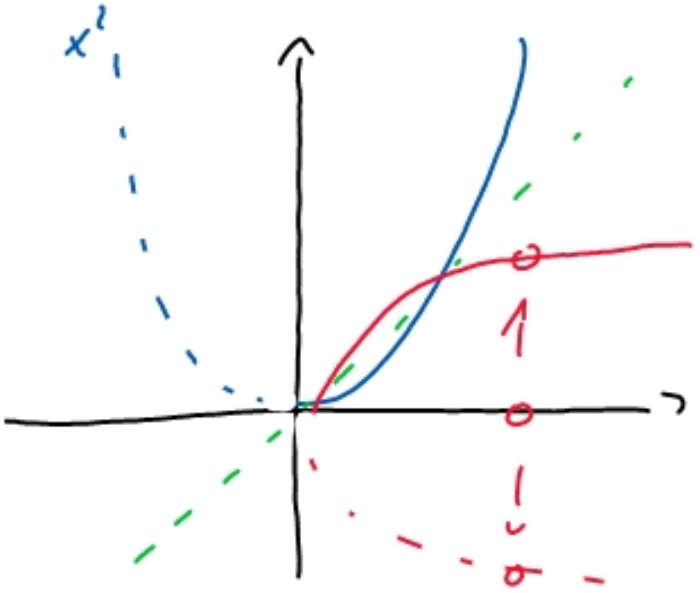


$\mathbb{P} = \{(x;y) \mid \in \mathbb{R} \times \mathbb{R}^2 \mid y = x^2\}$

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

$\mathbb{P}^{-1} = \{(x;y) \in \mathbb{R}_0^+ \times \mathbb{R}_0^+ \mid y = \sqrt{x}\}$

$\sqrt{x-4} = 2x+1$

... $x^2 = 9 \quad | \sqrt{\ }$

$x = \pm\sqrt{9} = \pm 3$

$x_1 ; x_2$ } Probe $+\sqrt{?}$

$3 \cdot x : 6 = 3 \cdot x \cdot \frac{1}{6}$

$= 3 \cdot \frac{1}{6} \cdot x = \frac{1}{2}x$

WS 2011-1 : $A = \{1; 2; 3; 4; 6; 8; 10; 12\}$

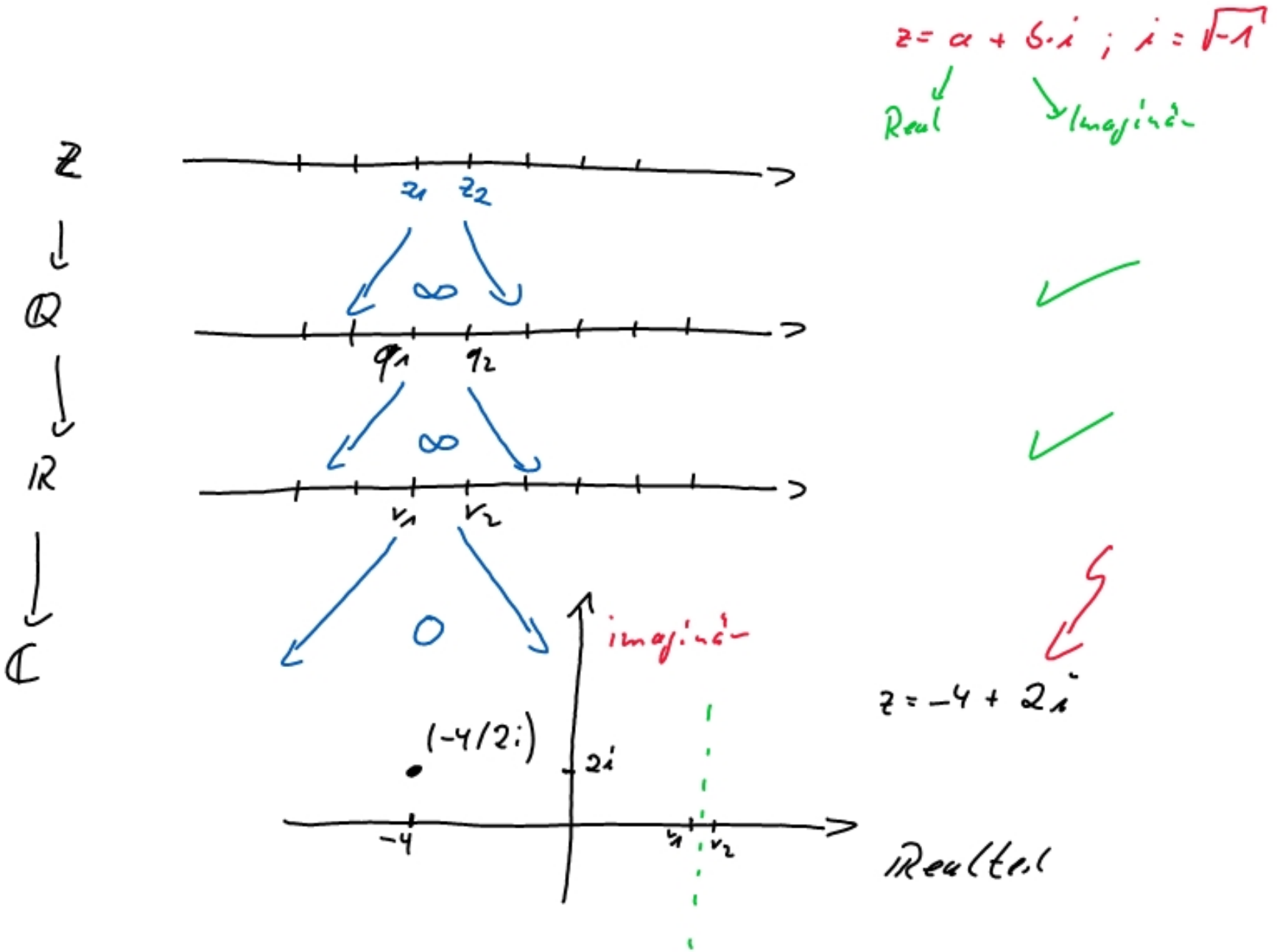
$B = \{1; 3; 5; 7; 9; 11; 13\}$

a) $A \cap B = \{1; 3\} = \{x \in \mathbb{N}^{\leq 3} \mid x \bmod 2 <> 0\}$

b) $A \cup B = x \in [1; 13]_{\mathbb{N}}$

c) $A \setminus B = \{x \in \mathbb{N}^{\leq 12} \mid x \bmod 2 = 0\}$

d) $B \setminus A = \{x \in [5; 13]_{\mathbb{N}} \mid x \bmod 2 <> 0\}$


z = a + b·i ; i = √-1
Real
Imaginär
ℤ
ℚ
ℝ
ℂ
z1
z2
q1
q2
r1
r2
0
imaginär
(-4/2i)
2i
-4
r1
r2
reell
z = -4 + 2i

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

$6i - 12 + 6i^2 + 3i - 4i - 2$

$6i - 12 + 6 \cdot (-1) + 3i - 4i - 2 = -20 + 5i$

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

$-3i \; (4i - 2) \cdot (2 + i) - 8 \cdot (3i + 1) \cdot (4 - 2i)$

$-3i \; (8i + 4i^2 - 4 - 2i) - 8 \cdot (12i - 6i^2 + 4 - 2i)$

$-3i \; (-8 + 6i) \quad -8 \; (10 + 10i)$

$24i + 18 \quad -80 - 80i \quad = -62 - 56i$

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

$a + b \quad a - b \quad a^2 - b^2$

$(3i + 1)^2 = (3i)^2 + 2 \cdot (3i) \cdot 1 + 1^2 = -8 + 6i$

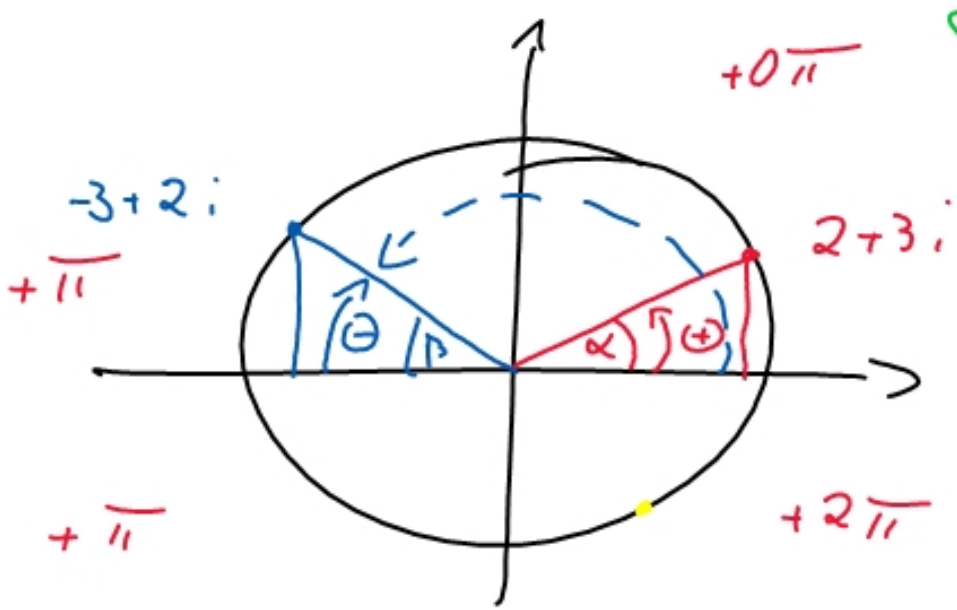
$(a + b)(a - b) = a^2 - b^2$ * $\frac{9i - 3 - 6i^2 + 2i}{-9 - 1} = \frac{3 + 11i}{-10}$

$= -0{,}3 - 1{,}1i$

$(2-3i)^5$

$$\frac{3-2i}{2-i} \cdot \frac{2+i}{2+i} = \frac{6+3i-4i-2i^2}{4-(-1)}$$

$$= \frac{8-i}{5} = \frac{8}{5} - \frac{1}{5}i = 1{,}6 - 0{,}2i$$



$(3-2i)^2$

$9 - 12i + (2i)^2$

$5 - 12i$

$\alpha = \arctan -\frac{12}{5} + 2\pi$

$$\frac{3i-2}{4i+3} \cdot \frac{4i-3}{4i-3} = \frac{-12-9i-8i+6}{-16-9} = \frac{-6-17i}{-25}$$

$$= \frac{6}{25} + \frac{17}{25}i$$