1. 27.10.2020

1.1. zadanie 1.

1. Prawda
2. Prawda dla $e = 1$
3. Prawda dla $e = 1$
4. Fałsz
5. $$x + y = 5$$
$$x^2 + y^2 = (x + y)^2 - 2xy = 25 - 2xy$$
$$25 - 2xy = 1$$
$$2xy = 24$$
$$xy = 12, x \neq 0$$
$$y = \frac{12}{x} \wedge x + y = 5 \rightarrow y = 5 - x$$
$$5x - x^2 = 12$$
$$x^2 - 5x + 12 = 0$$
$$\Delta = 25 - 4 \cdot 12 < 0 \Rightarrow \text{Zdanie jest fałszywe}$$
6. Fałsz dla $x = -1$

1.2. Zadanie 2

1. $\bigwedge y, z \, (x = y \cdot z \Rightarrow y = x \vee y = 1)$
2. $\bigvee y, z \in \mathbb{N} \, (x \cdot y = z \Rightarrow \neg \, (\bigwedge w \in \mathbb{N} \, (w \cdot z = y \wedge w > x)))$

1.3. Zadanie 3/4

2. 19.01.2021

$$|z|\left(\cos\alpha + i\sin\alpha\right) = |z|\, e^{i\alpha}$$

$$|z| = \sqrt{a^2 + b^2}$$

$$\begin{cases} \cos\alpha = \frac{a}{|z|} \\ \sin\alpha = \frac{b}{|z|} \end{cases}$$

$$|z|\left(\cos\alpha + i\sin\alpha\right) \cdot |w|\left(\cos\beta + i\sin\beta\right) = |zw|\left(\cos\left(\alpha+\beta\right) + i\sin\left(\alpha+\beta\right)\right)$$

$$\frac{|z|\left(\cos\alpha + i\sin\alpha\right)}{|w|\left(\cos\beta + i\sin\beta\right)} = \left|\frac{z}{w}\right|\left(\cos\left(\alpha-\beta\right) + i\sin\left(\alpha-\beta\right)\right)$$

$$\left(|z|\left(\cos\alpha + i\sin\alpha\right)\right)^n = |z^n|\left(\cos\left(\alpha\cdot n\right) + i\sin\left(\alpha\cdot n\right)\right)$$