

<p>Eksponecijalna funkcija:</p> $e^{x+iy} = \exp(x + iy) := e^x \operatorname{cis} y;$ $\exp : \mathbb{R} \times \langle \alpha, \alpha + 2\pi \rangle \longrightarrow \mathbb{C}^* \text{ je bijekcija,}$ $\exp : \mathbb{R} \times \langle \alpha, \alpha + 2\pi \rangle \longrightarrow \mathbb{C}_\alpha \text{ je bijekcija;}$ $e^{z+2\pi i} = e^z; \quad e^{z_1+z_2} = e^{z_1} \cdot e^{z_2}; \quad \overline{e^z} = e^{\bar{z}}; \quad e^{-z} = e^{\frac{1}{z}};$ $(e^z)^{\frac{m}{n}} = e^{\frac{m}{n}(z+2k\pi i)}, \quad k = 0, 1, \dots, n-1, \quad m, n \in \mathbb{N};$	<p>Logaritamska funkcija:</p> $\operatorname{Ln} z = \ln z + i(\arg z + 2k\pi), \quad k \in \mathbb{Z}, z \in \mathbb{C}^*$ $\operatorname{Ln}(z_1 \cdot z_2) = \operatorname{Ln} z_1 + \operatorname{Ln} z_2;$ $\operatorname{Ln}\left(\frac{z_1}{z_2}\right) = \operatorname{Ln} z_1 - \operatorname{Ln} z_2, \quad z_2 \neq 0;$
<p>Opća potencija:</p> $a \in \mathbb{C} \text{ fiksna}, z \mapsto z^a := e^{a \operatorname{Ln} z}, z \in \mathbb{C}^*$	<p>Opća eksponencijalna funkcija:</p> $a \in \mathbb{C}^* \text{ fiksna}, z \mapsto a^z := e^{z \operatorname{Ln} a}, z \in \mathbb{C};$
<p>Trigonometrijske funkcije:</p> $\sin z := \frac{1}{2i}(e^{iz} - e^{-iz});$ $\cos z := \frac{1}{2}(e^{iz} + e^{-iz});$ $\operatorname{tg} z := \frac{\sin z}{\cos z}, \quad z \neq \frac{\pi}{2} + k\pi, k \in \mathbb{Z};$ $\operatorname{ctg} z := \frac{\cos z}{\sin z}, \quad z \neq k\pi, k \in \mathbb{Z};$ $\sin(z + 2\pi) = \sin z; \quad \sin(-z) = -\sin z;$ $\cos(z + 2\pi) = \cos z; \quad \cos(-z) = \cos z;$ $\sin(z_1 \pm z_2) = \sin z_1 \cos z_2 \pm \cos z_1 \sin z_2;$ $\cos(z_1 \pm z_2) = \cos z_1 \cos z_2 \mp \sin z_1 \sin z_2;$ $\sin^2 z + \cos^2 z = 1;$	<p>Hiperbolne funkcije:</p> $\operatorname{sh} z := \frac{1}{2}(e^z - e^{-z});$ $\operatorname{ch} z := \frac{1}{2}(e^z + e^{-z});$ $\operatorname{th} z := \frac{\operatorname{sh} z}{\operatorname{ch} z}, \quad z \neq \left(\frac{\pi}{2} + k\pi\right)i, k \in \mathbb{Z};$ $\operatorname{cth} z := \frac{\operatorname{ch} z}{\operatorname{sh} z}, \quad z \neq k\pi i, k \in \mathbb{Z};$ $\operatorname{sh}(z + 2\pi i) = \operatorname{sh} z; \quad \operatorname{sh}(-z) = -\operatorname{sh} z;$ $\operatorname{ch}(z + 2\pi i) = \operatorname{ch} z; \quad \operatorname{ch}(-z) = \operatorname{ch} z;$ $\operatorname{sh}(z_1 \pm z_2) = \operatorname{sh} z_1 \operatorname{ch} z_2 \pm \operatorname{ch} z_1 \operatorname{sh} z_2;$ $\operatorname{ch}(z_1 \pm z_2) = \operatorname{ch} z_1 \operatorname{ch} z_2 \pm \operatorname{sh} z_1 \operatorname{sh} z_2;$ $\operatorname{ch}^2 z - \operatorname{sh}^2 z = 1;$ <p>Veza trigonometrijskih i hiperbolnih funkcija:</p> $\sin(iz) = i \operatorname{sh} z; \quad \operatorname{sh}(iz) = i \sin z;$ $\cos(iz) = \operatorname{ch} z; \quad \operatorname{ch}(iz) = \cos z;$ $\operatorname{tg}(iz) = i \operatorname{th} z; \quad \operatorname{th}(iz) = i \operatorname{tg} z;$ $\operatorname{ctg}(iz) = -i \operatorname{cth} z; \quad \operatorname{cth}(iz) = -i \operatorname{ctg} z;$
<p>Ciklometrijske funkcije:</p> $\operatorname{Arc} \sin z = -i \operatorname{Ln}(iz + \sqrt{1 - z^2}); \quad \operatorname{Arc} \operatorname{tg} z = \frac{i}{2} \operatorname{Ln} \frac{i+z}{i-z};$ $\operatorname{Arc} \cos z = -i \operatorname{Ln}(z + \sqrt{z^2 - 1}); \quad \operatorname{Arc} \operatorname{ctg} z = \frac{i}{2} \operatorname{Ln} \frac{z-i}{z+i};$	<p>Area funkcije:</p> $\operatorname{Ar} \operatorname{sh} z = \operatorname{Ln}(z + \sqrt{z^2 + 1}); \quad \operatorname{Ar} \operatorname{th} z = \frac{1}{2} \operatorname{Ln} \frac{1+z}{1-z};$ $\operatorname{Ar} \operatorname{ch} z = \operatorname{Ln}(z + \sqrt{z^2 - 1}); \quad \operatorname{Ar} \operatorname{cth} z = \frac{1}{2} \operatorname{Ln} \frac{z+1}{z-1};$

Derivacije osnovnih funkcija:

$(z^n)' = nz^{n-1}$ $\left(\frac{1}{z^n}\right)' = -\frac{n}{z^{n+1}}$ $(\sqrt[n]{z})' = \frac{1}{n\sqrt[n]{z^{n-1}}}$ $(e^z)' = e^z$ $(\operatorname{Ln} z)' = \frac{1}{z}$ $(a^z)' = a^z \operatorname{Ln} a$	$(\sin z)' = \cos z$ $(\cos z)' = -\sin z$ $(\operatorname{tg} z)' = \frac{1}{\cos^2 z}$ $(\operatorname{ctg} z)' = -\frac{1}{\sin^2 z}$	$(\operatorname{Arc} \sin z)' = \frac{1}{\sqrt{1 - z^2}}$ $(\operatorname{Arc} \cos z)' = -\frac{1}{\sqrt{1 - z^2}}$ $(\operatorname{Arc} \operatorname{tg} z)' = \frac{1}{1 + z^2}$ $(\operatorname{Arc} \operatorname{ctg} z)' = -\frac{1}{1 + z^2}$	$(\operatorname{sh} z)' = \operatorname{ch} z$ $(\operatorname{ch} z)' = \operatorname{sh} z$ $(\operatorname{th} z)' = \frac{1}{\operatorname{ch}^2 z}$ $(\operatorname{cth} z)' = -\frac{1}{\operatorname{sh}^2 z}$	$(\operatorname{Ar} \operatorname{sh} z)' = \frac{1}{\sqrt{1 + z^2}}$ $(\operatorname{Ar} \operatorname{ch} z)' = \frac{1}{\sqrt{z^2 - 1}}$ $(\operatorname{Ar} \operatorname{th} z)' = \frac{1}{1 - z^2}$ $(\operatorname{Ar} \operatorname{cth} z)' = \frac{1}{1 - z^2}$
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