

TVINNFALLAGREINING I- FORMÚLUBLAÐ

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Hornaföll

$$\cos(\theta) = \frac{e^{i\theta} + e^{-i\theta}}{2}$$

$$\sin^2(\theta) + \cos^2(\theta) = 1$$

$$\frac{\partial f}{\partial z} = \frac{\partial \bar{f}}{\partial \bar{z}}$$

Höfuðgrein hornsins:

$$\sin(\theta) = \frac{e^{i\theta} - e^{-i\theta}}{2i}$$

$$(\cos(\theta) + i \sin(\theta))^n = \cos(n\theta) + i \sin(n\theta)$$

$$\frac{\partial \bar{f}}{\partial \bar{z}} = \frac{\partial f}{\partial z}$$

$$\operatorname{Arg} z = 2 \arctan \left(\frac{y}{|z| + x} \right), \quad \operatorname{Arg} : \mathbb{C} \setminus R_- \rightarrow]-\pi, \pi[.$$

Höfuðgrein lografallsins:

$$\operatorname{Log} z = \ln |z| + i \operatorname{Arg}(z), \quad \operatorname{Log} : \mathbb{C} \setminus \mathbb{R}_- \rightarrow \mathbb{C}.$$
$$\cos(z) = \frac{e^{iz} + e^{-iz}}{2}$$

$$\sin(z) = \frac{e^{iz} - e^{-iz}}{2i}$$

Vegheildi:

$$\int_C f dz = \int_{\gamma} f dz = \int_{\gamma} f dx + i f dy = \int_a^b f(\gamma(t)) \gamma'(t) dt$$
$$\int_C f d\bar{z} = \int_{\gamma} f d\bar{z} = \int_{\gamma} f dx - i f dy = \int_a^b f(\gamma(t)) \overline{\gamma'(t)} dt$$

$$f(z) = \sum_{n=0}^{\infty} c_n (z-a)^n, \quad c_n = \frac{1}{2\pi i} \int_{\partial D(a,r)} \frac{f(\zeta)}{(\zeta-z)^{n+1}} \partial \zeta$$

$$f^{(n)}(z) = \frac{n!}{2\pi i} \int_{\partial \Omega} \frac{f(\zeta)}{(\zeta-z)^{n+1}} \partial \zeta$$

$$\int_{\partial \Omega} f(z) dz = 2\pi i \sum_{\alpha \in \omega \cap A} \operatorname{Res}(f, \alpha)$$