$$ {}^{\varphi}x^{j} = {}^{x}\varphi^{j} \in \mathbb{C} $$

$$ {}^{\varphi}\bar{y}_{i} = {}^{y}\bar{\varphi}^{i} \in \mathbb{C} $$

$$ {}^{\varphi}\overparen{dx^{j}}\ \underset{\cdot}{\varphi} = {}^{x}\underset{\cdot}{\varphi}^{j} $$

$$ {}^{\varphi}\overparen{d\bar{y}_{i}}\ \underset{\cdot}{\varphi} = {}^{y}\underset{\cdot}{\bar{\varphi}}^{i} $$

$$ {}^{\varphi}\overparen{\partial_{sk}x^{j}} = {}^{s-x}\delta\ {}_{k}\delta^{j} $$

$$ {}^{\varphi}\overparen{\partial_{sk}\bar{y}_{i}} = {}^{s-y}\delta\ {}^{k}\delta_{i} $$

$$ \int {}^{\varphi}\overparen{\partial_{sk}x^{j}}\ {}^{s}\underset{\cdot}{\varphi}^{k} = {}^{\varphi}\overparen{dx^{j}}\ \underset{\cdot}{\varphi} = {}^{x}\underset{\cdot}{\varphi}^{j} = \int {}^{s-x}\delta\ {}_{k}\delta^{j}\ {}^{s}\underset{\cdot}{\varphi}^{k} $$

$$ \int {}^{\varphi}\overparen{\partial_{sk}\bar{y}_{i}}\ {}^{s}\underset{\cdot}{\varphi}^{k} = {}^{\varphi}\overparen{d\bar{y}_{i}}\ \underset{\cdot}{\varphi} = {}^{y}\underset{\cdot}{\bar{\varphi}}^{i} = \int {}^{s-y}\delta\ {}^{k}\delta_{i}\ {}^{s}\underset{\cdot}{\varphi}^{k} $$

$$ \frac{d}{ds}\ \mathrm{sgn}\ (s-y) = 2\delta\,(s-y) $$

$$ \int {}^{s}\underset{\cdot}{\varphi}\,\partial\ \mathrm{sgn}\ (s-y) = -\int {}^{s}\overparen{\partial\underset{\cdot}{\varphi}}\ \mathrm{sgn}\ (s-y) = \int_{-\infty}^{y} {}^{s}\overparen{\partial\underset{\cdot}{\varphi}} - \int_{x}^{\infty} {}^{s}\overparen{\partial\underset{\cdot}{\varphi}} = 2\,{}^{x}\underset{\cdot}{\varphi} = 2\int {}^{s}\underset{\cdot}{\varphi}\,\delta\ \mathrm{sgn}\ (s-y) $$

$$ \frac{d}{ds}^{-1}\delta\,(s-y) = \frac{1}{2}\ \mathrm{sgn}\ (s-y) $$

$$ {}_{\varphi}\overparen{x^{i} \times {}_{j}\bar{y}} = \omega_{\varphi}\left({}^{\varphi}\overparen{dx^{i}}\,{}^{\varphi}\overparen{d_{j}\bar{y}}\right) = \int {}^{\varphi}\overparen{\partial_{sk}x^{i}}\ \frac{d}{ds}^{-1}\ {}^{\varphi}\overparen{\partial_{sk_{j}}\bar{y}} = \int {}^{s-x}\delta\ {}_{k}\delta^{i}\ \frac{d}{ds}^{-1}\ {}^{s-y}\delta\ {}_{i}\delta^{k} $$

$$ = {}_{j}\delta^{i}\int {}^{s-x}\delta\ \frac{d}{ds}^{-1}\ {}^{s-y}\delta = {}_{j}\delta^{i}\int {}^{s-x}\delta\,\frac{1}{2}\ \mathrm{sgn}\ (s-y) = {}_{i}\delta^{j}\,\frac{1}{2}\ \mathrm{sgn}\ (x-y) $$