$$\left[\arcsin, z \leq -1 \vee 1 \leq z, z \in \left[-1, 1, \infty + \infty\ \mathrm{I}\right], -\mathrm{I}\ \ln\left(\mathrm{I}\ z + \sqrt{-z^2+1}\right)\right]:$$

$$\left[\arccos, z \leq -1 \vee 1 \leq z, z \in \left[-1, 1, \infty + \infty\ \mathrm{I}\right], \frac{\pi}{2} + \mathrm{I}\ \ln\left(\mathrm{I}\ z + \sqrt{-z^2+1}\right)\right]:$$

$$\left[\arctan, z \in \mathit{ComplexRange}\left(-\infty\ \mathrm{I}, -\mathrm{I}\right) \vee z \in \mathit{ComplexRange}\left(\mathrm{I}, \infty\ \mathrm{I}\right) z \in \left[-\mathrm{I}, \mathrm{I}\right], \frac{\mathrm{I}}{2}\ \left(\ln\left(1-\mathrm{I}\ z\right) - \ln\left(1+\mathrm{I}\ z\right)\right)\right]:$$

$$\left[\operatorname{arccsc}, z \in \left[-1, 0\right) \vee z \in \left(0, 1\right], z \in \left[-1, 0, 1\right], -\mathrm{I}\ \ln\left(\frac{\mathrm{I}}{z} + \sqrt{1 - \frac{1}{z^2}}\right)\right]:$$

$$\left[\operatorname{arcsec}, z \in \left[-1, 0\right) \vee z \in \left(0, 1\right], z \in \left[-1, 0, 1\right], \frac{\pi}{2} + \mathrm{I}\ \ln\left(\frac{\mathrm{I}}{z} + \sqrt{1 - \frac{1}{z^2}}\right)\right]:$$

$$\left[\operatorname{arccot}, z \in \mathit{ComplexRange}\left(-\infty\ \mathrm{I}, -\mathrm{I}\right) \vee z \in \mathit{ComplexRange}\left(\mathrm{I}, \infty\ \mathrm{I}\right), z \in \left[-\mathrm{I}, \mathrm{I}\right], \frac{\pi}{2} - \frac{\mathrm{I}\ \left(\ln\left(1-\mathrm{I}\ z\right) - \ln\left(1+\mathrm{I}\ z\right)\right)}{2}\right]:$$

$$\left[\operatorname{arcsinh}, z \in \mathit{ComplexRange}\left(-\infty\ \mathrm{I}, -\mathrm{I}\right) \vee z \in \mathit{ComplexRange}\left(\mathrm{I}, \infty\ \mathrm{I}\right), z \in \left[-\mathrm{I}, \mathrm{I}, \infty + \infty\ \mathrm{I}\right], \ln\left(z + \sqrt{z^2+1}\right)\right]:$$

$$\left[\operatorname{arccosh}, z < -1 \vee z \in \left(-1, 1\right], z \in \left[-1, 1, \infty + \infty\ \mathrm{I}\right], \ln\left(z + \sqrt{z-1}\ \sqrt{z+1}\right)\right]:$$

$$\left[\operatorname{arctanh}, z \leq -1 \vee 1 \leq z, z \in \left[-1, 1\right], \frac{\ln\left(z+1\right)}{2} - \frac{\ln\left(1-z\right)}{2}\right]:$$

$$\left[\operatorname{arccsch}, z \in \mathit{ComplexRange}\left(-\mathrm{I}, \mathrm{I}\ \mathit{Open}\left(0\right)\right) \vee z \in \mathit{ComplexRange}\left(\mathrm{I}\ \mathit{Open}\left(0\right), \mathrm{I}\right), z \in \left[-\mathrm{I}, 0, \mathrm{I}\right], \ln\left(\frac{1}{z} + \sqrt{1 + \frac{1}{z^2}}\right)\right]:$$

$$\left[\operatorname{arcsech}, z < 0 \vee 1 \leq z, z \in \left[-1, 0, 1\right], \ln\left(\frac{1}{z} + \sqrt{\frac{1}{z} - 1}\ \sqrt{\frac{1}{z} + 1}\right)\right]:$$

$$\left[\operatorname{arccoth}, z \in \left[-1, 1\right], z \in \left[-1, 1\right], \frac{\ln\left(z+1\right)}{2} - \frac{\ln\left(z-1\right)}{2}\right]:$$