

$$\mathbf{arg}(a + bi) = \begin{cases} \arctan(\frac{b}{a}) & \mathbf{if} \ a > 0 \\ \arctan(\frac{b}{a}) + \pi & \mathbf{if} \ a < 0 \ \mathbf{and} \ b \geq 0 \\ \arctan(\frac{b}{a}) - \pi & \mathbf{if} \ a < 0 \ \mathbf{and} \ b < 0 \\ \frac{\pi}{2} & \mathbf{if} \ a = 0 \ \mathbf{and} \ b > 0 \\ -\frac{\pi}{2} & \mathbf{if} \ a = 0 \ \mathbf{and} \ b < 0 \\ \mathbf{undefined} & \mathbf{if} \ x = 0 \ \mathbf{and} \ b = 0 \end{cases}$$