

Cartesian form	$a + bi$
Conjugate	$z = a + bi \rightarrow \bar{z} = a - bi$
Modulus	$ z = \sqrt{a^2 + b^2}$
Argument	$\alpha = \arctan\left(\frac{b}{a}\right)$
Polar form	$ z _{\alpha}$
Trigonometric form	$ z \cdot (\cos \alpha + i \cdot \sin \alpha) = z \operatorname{cis} \alpha$
Exponential form	$ z \cdot e^{i\alpha} = z (\cos \alpha + i \cdot \sin \alpha)$
Polar to cartesian conversion	$\left. \begin{array}{l} \operatorname{Re} = a = z \cos \alpha \\ \operatorname{Im} = b = z \sin \alpha \end{array} \right\} \rightarrow z \cdot (\cos \alpha + i \cdot \sin \alpha) = a + bi$
Addition in cartesian form	$(a + bi) + (c + di) = (a + c) + (b + d)i$
Subtraction in cartesian form	$(a + bi) - (c + di) = (a - c) + (b - d)i$
Multiplication in cartesian form	$(a + bi) \cdot (c + di) = (ac - bd) + (ad + bc)i$
Division in cartesian form	$\frac{a + bi}{c + di} = \frac{(a + bi) \cdot (c - di)}{(c + di) \cdot (c - di)} = \frac{(ac + bd) + (bc - ad)i}{c^2 + d^2}$
Multiplication in polar form	$ z _{\alpha} \cdot w _{\beta} = z \cdot w _{\alpha + \beta}$
Division in polar form	$\frac{ z _{\alpha}}{ w _{\beta}} = \left \frac{z}{w} \right _{\alpha - \beta}$
Power in polar form	$(z _{\alpha})^n = z^n _{\alpha \cdot n}$
n-th root in polar form	$\sqrt[n]{ z _{\alpha}} = \left(\sqrt[n]{ z } \right)_{\frac{\alpha + k \cdot 360^\circ}{n}} \quad k = 0, 1, 2, \dots, n - 1$
de Moivre's formula	$(\cos \alpha + i \cdot \sin \alpha)^n = \cos(n\alpha) + i \cdot \sin(n\alpha)$

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