Complex number (standard form) a + bi

Complex number (polar form) $r(\cos(\theta) + i\sin(\theta)) = re^{i\theta}$

Adding complex numbers (a+bi)+(c+di)=(a+c)+(b+d)i

Multiplying complex numbers $r_1(\cos(\theta_1) + i\sin(\theta_1)) \cdot r_2(\cos(\theta_2) + i\sin(\theta_2)) = r_1r_2(\cos(\theta_1\theta_2) + i\sin(\theta_1\theta_2))$

multiply the lengths, add the angles

Complex exponent $e^{a+bi} = e^a e^{bi}$

 $length = e^a$, angle = b

Complex log $\ln(re^{i\theta}) = \ln(r) + i\theta \qquad (+2\pi ki)$