Primitive Roots of Unity

A Complex number z is called a primitive n^{th} root of unity iff n is the least positive integer s.t. $z^n = 1$.

$(-1) = -1 + i \cdot 0$

$(-1)^2 = 1$ $\boxed{n = 2}$

$$(i) = 0 + i$$

$$(i)^1 = i$$

$$i^2 = -1$$

$$i^3 = i \cdot i^2 = i(-1) = -i$$

$$i^4 = (i^2)^2 = (-1)^2 = 1$$

$$\boxed{i^4 = 1}$$