

### Answer on Question #50130 - Math - Complex Analysis

Absolute value of  $a_n = n + i \sin n$  is greater than 1, so the absolute value of  $(n + i \sin n)^{1/n}$  is also greater than 1 and hence  $a_n$  does not converge to 0. So the initial series isn't convergent.

$n^{in} = (e^{\ln n + 2\pi i})^{in} = e^{in \ln n} e^{-2\pi n}$  that its absolute value converges to zero exponentially. Therefore, by comparison criterion, the initial series converges.