

Quiz #1**PHYS315****Sept 29, 2005**

A quantum state is given by

$$\Psi = N [4 |\phi_1\rangle + 6 |\phi_2\rangle + \sqrt{3} i |\phi_3\rangle]$$

Find N and the probability for being in the $n=3$ state.

$$|\Psi|^2 = 1 = N^2 (16 + 36 + 3) = 55N^2$$

$$N = 1/\sqrt{55}$$

$$P_3 = |c|^2 = |\sqrt{3} i / \sqrt{55}|^2 = \mathbf{0.055}$$