PHYS 451: Quantum Mechanics I – Spring 2017
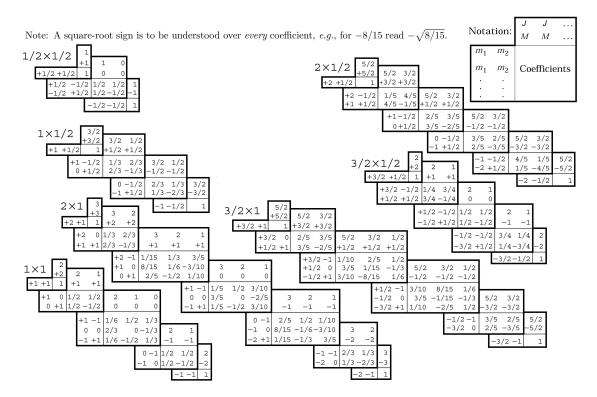## Quiz #6

1. A particle of spin 1 and a particle of spin 2 are at rest in a configuration such that the total spin is 3, and its z component is $\hbar$. If you measured the z component of the angular momentum of the spin-2 particle, what values might you get, and what is the probability of each one?

2. An electron with spin down is in the state ψ_{510} (5, 1, and 0 stand for the n, l, and m_l quantum numbers) of the hydrogen atom. If you could measure the total angular momentum squared of the electron alone (not including the proton spin), what values might you get, and what is the probability of each?

CLEBSCH-GORDAN COEFFICIENTS

Note: A square-root sign is to be understood over *every* coefficient, *e.g.*, for −8/15 read $-\sqrt{8/15}$.

Clebsch-Gordan coefficient tables for: 1/2×1/2, 1×1/2, 2×1, 1×1, 3/2×1, 2×1/2, 3/2×1/2, 3/2×1 couplings.