

# PHY215 Homework Calculation “C1”

8 points

Include with your HW9 collection

Due: October 32, 2017 ...um...November 1, 2017

## Calculation C1:

This is from lecture notes from QM\_2/6-QM.2.1.key.pdf

The lecture notes have been amended! Remember that I said that we always work in “blackboard units” in which  $c = 1$  and  $\hbar = 1$ ? But not in PHY215?

Well, it's so tattooed on my brain that when I did the calculation and transferred it to the lecture notes, I just did it like we particle-pros do it:

$$M_{\Delta}^2 = m_{\pi}^2 + m_p^2 + 2(K_{\pi} + m_{\pi})(m_p).$$

Yeah. Notsomuch, units-wise. What it should have been (and is now) is

$$M_{\Delta}^2 c^4 = m_{\pi}^2 c^4 + m_p^2 c^4 + 2(K_{\pi} + m_{\pi} c^2)(m_p c^2).$$

That's the calculation to do: Show this.