Physics 203 Quiz 2

Jun 26, 2013

Word Problems

Show all your work and circle your final answer. (Ten points each.)

1. When an electron and a positron (its antimatter twin) collide they typically annihillate in a burst of electromagnetic energy. Assume all the energy from the mass of the pair (each equal to 9.11×10^{-31} kilograms) is converted into two photons of energy. What is the wavelength of these photons?

Answer: 2.43×10^{-12} meters

2. An evil genius wants to shrink the Moon in order to steal it. He accidentally shrinks its below it Schwarzschild radius and the Moon is lost forever in a mini-black hole. What is this radius?

Answer: 0.109 millimeters