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Original post by aylemzz32A firework consists of a stack of five parts, each of mass m . It is launched upwards from the ground by a small explosive charge that releases energy E . When the firework reaches its greatest height, another charge releases energy E and causes the bottom part to separate from the other four parts and fall down, while the remaining four parts are propelled upwards. When the remaining four parts reach their maximum height, another charge releases energy E and causes the bottom part to separate from the other three parts. The firework continues to separate in this way until the topmost part is travelling alone (Figure 1). The topmost part finally self-destructs in a flash of light when it reaches its maximum height, h . You may assume that all the energy from the charges is converted into kinetic energy, the explosions do not change the mass of the parts, and the firework is small compared to all the heights involved. Find an expression for the final height of the topmost part h , in terms of the energy E of each explosive charge, the mass m of each part, and the gravitational field strength g . You need some help with this Isaac physics question, the link to the question is just above with the diagram. Any help would be appreciated! Welcome to TSR. In case you need more hint(s) or a kickstart for the problem. Consider the sequence of events as follows: 1 part: Launching Apply the conservation of energy to find the highest height says h_1 that $5m$ would reach. Namely, Loss of KE = Gain in GPE 2 part: 1st Separation Use the conservation of linear momentum to find how the energy E is distributed among m and $4m$ respectively, after the explosion. Next, apply the conservation of energy to find the highest height says h_2 that $4m$ would reach. Loss of KE (in terms of E) = Gain in GPE of the $4m$ Do the same analysis for 2nd, 3rd and 4th separation. Finally, a nice answer would be revealed. © Hello, I just had parents evening and teachers recommended Isaac physics to help keep up my grade with challenging questions, but when I used it before there were no worked solutions, does anyone know if there is anywhere that provides worked solutions for Isaac physics. Welcome to our platform dedicated to providing top-notch physics support for students. We provide step by step solutions to difficult Isaac Physics questions, as well as posting challenging problems weekly. Report this resource to let us know if it violates our terms and conditions. Our customer service team will review your report and will be in touch. Hi Agim, sorry you have not found the resource useful. As you say, the resource contains all of the answers to the A-level Isaac Physics answers but it does not contain full workings out. Apologies if there was any confusion from the resource description. Ed You need to enable JavaScript to access Isaac Physics. 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