1. (K & K 4.4) An instrument-carrying rocket accidentally explodes at the top of its trajectory. The horizontal distance between the launch point and the point of explosion is L. The rocket breaks into two pieces that fly apart horizontally. The larger piece has three times the mass of the smaller piece. To the suprise of the scientist in charge, the smaller piece returns to Earth at the launching station. How far away does the larger piece land? Neglect air resistance and effects due to the Earth's curvature.