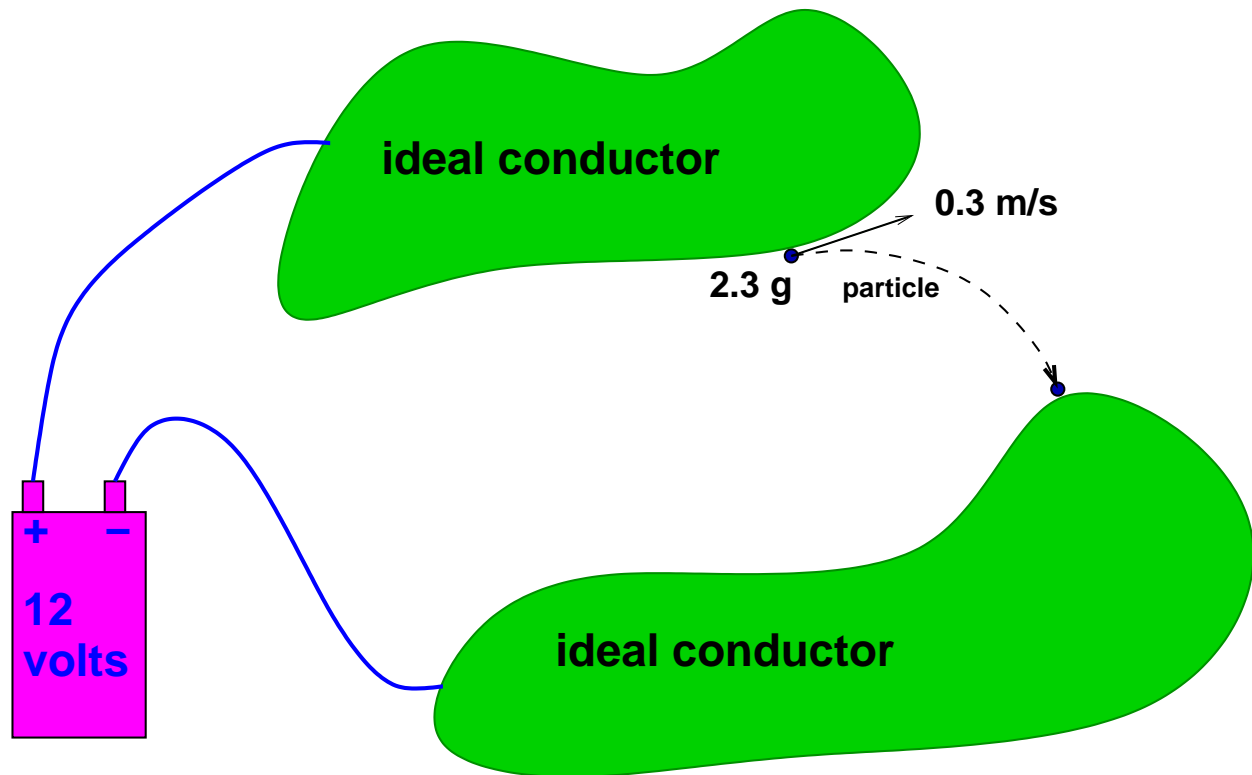


**Physics 122: Practice Problem of the Day****Problem #04: A Particle, A Battery, and Two Conductors**

Friday, 16 Jan 2008



A small particle of given mass 2.3 grams and given positive charge  $20.0 \mu\text{C}$  is given an initial speed of 0.30 m/s at a starting position which is extremely close to the surface of a large ideal conductor of irregular shape that is connected by an ideal conducting wire to the positive terminal of an ideal 12-volt battery. The particle moves on a curved path due to the influence of the electric field between the two conductors. Determine the speed of the particle just before it impacts the second ideal conductor (which is connected to the negative terminal of the same battery). For this problem ignore air friction and also ignore gravity completely.