

Quiz 19.3A

A 375 gram ball carrying an unknown charge q_1 is initially at rest 2.20 meters above ground level. Directly below the ball is a fixed charge of value $q_2 = 45.0 \mu\text{C}$.

When the ball is released, it falls toward the fixed charge, reaching a minimum distance of 36.0 cm before briefly coming to a stop.

Assuming that gravity and the electric force are the only forces in this problem that do any work, determine the value of the unknown charge q_1 .