ICW05D1-0 Momentum and Impulse

A superball of $m$, starting at rest, is dropped from a height $h_i$ above the ground and bounces back up to a height of $h_f$. The collision with the ground occurs over a time interval $\Delta t_c$. You may ignore air resistance.

a) What is the momentum of the ball immediately before the collision?

b) What is the momentum of the ball immediately after the collision?

c) What impulse is imparted to the ball?

d) What is the average force of the ground on the ball?