

use $g = 10 \text{ m/s}^2$

Momentum and Impulse Activity 1

Name: _____

momentum: $\vec{p} = m \cdot \vec{v}$ $\text{kg} \cdot \text{m} / \text{sec.}$

$$\Delta \vec{p} = m v_f - m v_i$$

impulse: $J = \Delta \vec{p} = F \cdot \Delta t$

$$F(\Delta t) = m v_f - m v_i$$

golf ball mass: _____ height: _____ contact time: _____

A golf ball is of mass 'm' is dropped from a height 'h'.

Assume the ball has a perfectly elastic collision with the floor.

a.) Determine the time required for the ball to reach the floor.

b.) What will the instantaneous momentum of the ball be immediately before it strikes the floor?

c.) What will be the change in momentum ($\Delta \vec{p}$) from the instant before the ball collides with the floor until the instant after it rebounds from the floor?

d.) Suppose that the golf ball was in contact with the floor for a time 't'. What was the average force on the ball?

hints: Use all 3 kinematic equations; direction of velocity and acceleration is important; the ball will return to the same height it was dropped.