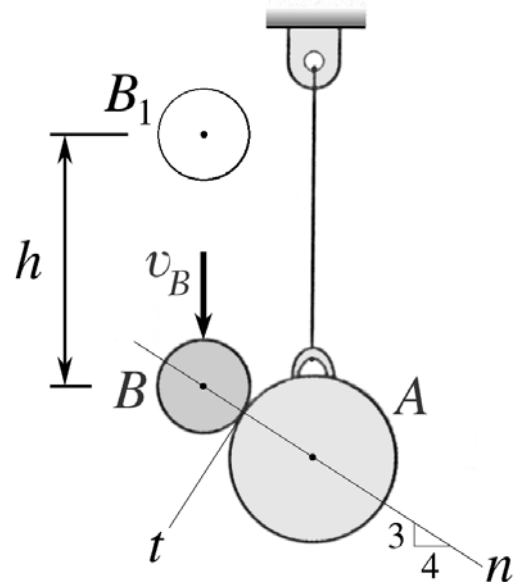# MEEG 2013 Quiz #4

A 2-lb sphere B is released to fall freely from position B_1 to hit a wire-suspended 6-lb sphere A, as shown, where $h = 3.4938$ ft and the coefficient of restitution between A and B is $e = 0.8$. Determine (a) the speed v_B of B just before impact, (b) the velocities $\mathbf{v}'_A$ and $\mathbf{v}'_B$ of the spheres just after impact.

(a) $v_B = 15.00$ ft/s   ②

$$MD_1 + ID_{1\to2} = MD_2 \quad \text{for } B \ \& \ A \qquad ②$$

$$MD_1 + ID_{1\to2} = MD_2 \quad \text{for just } B \qquad ②$$

Impact equation   ②

$v'_{Bt} = 12.00$ ft/s $v'_{Bn} = -4.3516$ ft/s $v'_A = 3.5604$ ft/s

(b) $\mathbf{v}'_B = -10.68\,\mathbf{i} - 6.99\,\mathbf{j}$ ft/s $\mathbf{v}'_A = 3.56\,\mathbf{i}$ ft/s   ②