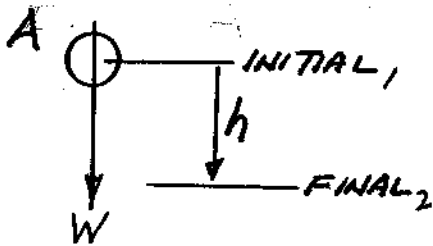


3 BALLS EACH WEIGH 0.5^{lb}.
e = 0.85

BALL A RELEASED FROM REST. A STRIKES B THEN BALL B MOVES FROM REST AND STRIKES C.

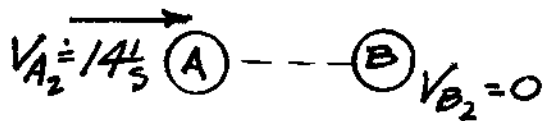
DETERMINE VELOCITY OF EACH BALL AFTER SECOND COLLISION.



WORK = ΔPE = ΔKE
 $(W)(h) = \frac{1}{2} m(V_2^2 - V_1^2)$
 $(0.5^{lb})(3') = \frac{1}{2} \frac{0.5^{lb}}{32.2 \frac{1}{52}} V_2^2$

BALL A FALLS 3'
THEN A HITS B

$V_2 = 13.8996 \frac{1}{3}$



$e = 0.85 = -\frac{(V_{B3} - V_{A3})}{V_{B2} - V_{A2}}$

$(-13.8996 \frac{1}{3})(0.85) = -(V_{B3} - V_{A3}) = -11.815 \frac{1}{3}$ (I)

CONSERVATION WHERE $m_A = m_B$

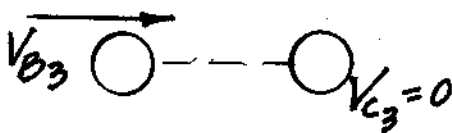
$V_{A2} + V_{B2} = V_{A3} + V_{B3} = 13.8996 \frac{1}{3}$ (II) ADD I+II

$2V_{A3} = 2.085 \frac{1}{3}$

$V_{A3} = 1.042 \frac{1}{3}$

$\therefore V_{B3} = 12.857 \frac{1}{3}$

NOW B IS IN MOTION AND STRIKES C WHILE IT IS AT REST.



$e = 0.85 = -\frac{(V_{C4} - V_{B4})}{V_{C3} - V_{B3}} = -\frac{(V_{C4} - V_{B4})}{-12.857}$

$10.929 = V_{C4} - V_{B4}$ (III)

$V_{B3} + V_{C3} = V_{B4} + V_{C4} = 12.857$ (IV)

$2V_{C4} = 23.786$

$V_{Cf} = 11.893$ $V_{Bf} = 0.964$