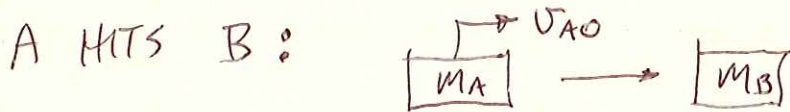


PROB. 14-8

$$M_A = 240 \text{ kg}, M_B = 260 \text{ kg}, M_C = 235 \text{ kg}$$

$$\vec{V}_{A0} = (2) \hat{i} \frac{\text{m}}{\text{s}}, \vec{V}_{B0} = 0, e = 0.8$$

FIND V_{CF} SUCH THAT $V_{BF} = 0$ AFTER B HITS C



$$M_A V_{A0} = M_A V_{AF} + M_B V_{BF}$$

$$(240)(2) = (240)V_{AF} + (260)V_{BF}$$

$$240V_{AF} + 260V_{BF} = 480$$

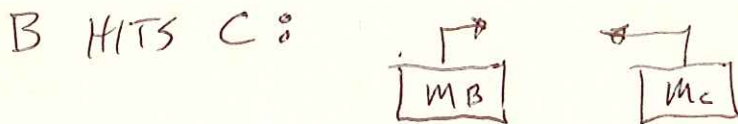
$$V_{BF} - V_{AF} = e(V_{A0} - V_{B0})$$

$$V_{BF} = V_{AF} + 0.8(2) = V_{AF} + 1.6$$

$$240V_{AF} + 260(V_{AF} + 1.6) = 480$$

$$500V_{AF} = 64 \Rightarrow V_{AF} = 0.128 \frac{\text{m}}{\text{s}} \rightarrow$$

$$V_{BF} = (0.128) + 1.6 = 1.728 \frac{\text{m}}{\text{s}} \rightarrow$$



$$M_B V_{B0} + M_C V_{C0} = M_B V_{BF} + M_C V_{CF}$$

$$(260)(1.728) + (235)(V_{C0}) = (235)V_{CF}$$

$$V_{C0} = V_{CF} - 1.912$$

$$V_{BF} - V_{CF} = e(V_{C0} - V_{B0})$$

$$V_{CF} = -0.8(V_{C0} - 1.728) = -0.8V_{C0} + 1.382$$

PROB. 14-8 CONT.

$$V_{CF} = -0.8(V_{CF} - 1.912) + 1.382$$

$$V_{CF} = -0.8V_{CF} + 2.912$$

$$V_{CF} = 1.617 \frac{M}{S}$$

$$V_{CO} = 1.617 - 1.912 = -0.2944 \frac{M}{S} \leftarrow$$