



DISKS SLIDE ON SMOOTH SURFACE AND HAVE DIRECT CENTRAL IMPACT. $e = 0.4$

$$e = -\frac{\text{OUT}}{\text{IN}} = -\frac{V_{BA2}}{V_{BA1}} = -\frac{(V_{B2} - V_{A2})}{V_{B1} - V_{A1}} = -\frac{(V_{B2} - V_{A2})}{(-2) - (5)}$$

$$0.4 = -\frac{(V_{B2} - V_{A2})}{-7} \quad \therefore \boxed{2.8 = V_{B2} - V_{A2}}$$

CONSERVATION OF MOMENTUM:

$$mV_{A1} + mV_{B1} = mV_{A2} + mV_{B2}$$

$$(2 \text{ kg})(5 \frac{\text{m}}{\text{s}}) + (4 \text{ kg})(-2 \frac{\text{m}}{\text{s}}) = 2V_{A2} + 4V_{B2}$$

$$10 - 8 = 2V_{A2} + 4V_{B2} \quad \div 2$$

$$\boxed{1 = V_{A2} + 2V_{B2}}$$

ADD EQ.

$$2.8 = V_{B2} - V_{A2}$$

$$1 = V_{A2} + 2V_{B2}$$

$$3.8 = 3V_{B2}$$

$$\therefore V_{B2} = \underline{1.2667} \frac{\text{m}}{\text{s}}$$

$$\therefore V_{A2} = 1 - 2(1.2667)$$

$$\therefore V_{A2} = -1.533 \frac{\text{m}}{\text{s}}$$

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