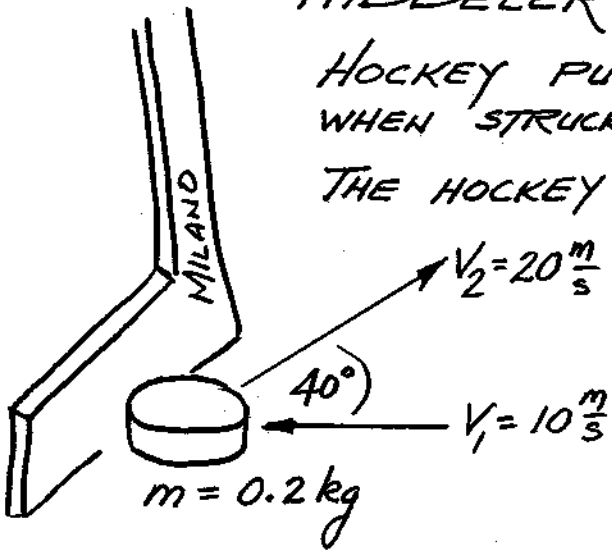


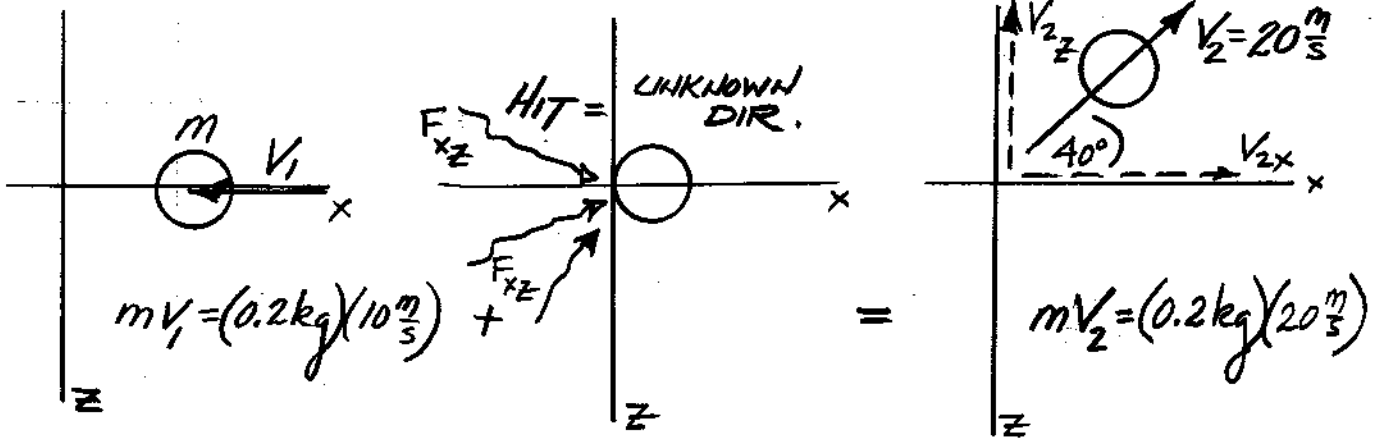
HOCKEY PUCK TRAVELS TO LEFT WHEN STRUCK BY HOCKEY STICK.

THE HOCKEY PUCK THEN VEERS OFF AT 40°.

? WHAT IS NET IMPULSE EXERTED BY STICK?



VIEW FROM TOP LOOKING AT HORIZ. PL



OR

$$\sum \int F dt = \Delta KE \quad \text{FORCE ON PUCK}$$

$$\sum \int F dt = \Delta mV = mv_2 - mv_1$$

X-DIRECTION

$$\sum \int F_x dt = \text{IMP}_x = 0.2 \text{ kg} [20 \cos 40^\circ - (-10 \frac{m}{s})]$$

$$\boxed{\text{IMP}_x = 5.064 \text{ N}\cdot\text{s}}$$

Z-DIRECTION

$$\sum \int F_z dt = \text{IMP}_z = 0.2 \text{ kg} [20 \sin 40^\circ - 0]$$

$$\boxed{\text{IMP}_z = 2.571 \text{ N}\cdot\text{s}}$$

\therefore IMPACT FORCE ON PUCK = $5.064 \hat{i} + 2.571 \hat{k}$

$$\text{IMPULSE}_{\text{TOT}} = \sqrt{(5.064)^2 + (2.571)^2} =$$

UNITS: $mV = \frac{\text{kg}}{\text{s}} \times \frac{\text{m}}{\text{s}} = \frac{\text{kg}\cdot\text{m}}{\text{s}^2} = \text{N}\cdot\text{s}$

$$\boxed{\text{IMP} = 5.68 \text{ N}\cdot\text{s}}$$