

SIDNEY CROSBY HITS A PUCK  
WITH A FORCE OF 50 N TO THE  
RIGHT. HIS CONTACT TIME IS  
.35 s. What is the puck's  
impulse?

$$\Delta P = F \Delta t$$

$$F = 50 \text{ N} \rightarrow \Delta P = 50 \vec{N} (.35 \text{ s})$$

$$\Delta t = .35 \text{ s}$$

$$\Delta P = 17.5 \text{ kg m/s} \rightarrow$$

$$\Delta P = ?$$

The mass of a puck is .17 kg  
What is the change in velocity

$$\Delta P = 17.5 \text{ kg m/s Right}$$

$$m = .17 \text{ kg}$$

$$\Delta v = ?$$

$$\Delta v = 102.94 \text{ m/s} \rightarrow$$

$$\Delta P = m \Delta v$$

$$\frac{17.5 \text{ kg m/s}}{.17 \text{ kg}} = \frac{(.17 \text{ kg}) \Delta v}{.17 \text{ kg}}$$

If the puck was moving 15 m/s to the left, what was the final velocity of the puck?

$$\Delta v = 102.94 \text{ m/s Right}$$

$$v_i = -15 \text{ m/s}$$

$$v_f = ?$$

$$v_f = 87.94 \text{ m/s} \rightarrow$$

$$\Delta v = v_f - v_i$$

$$\begin{array}{l} 102.94 \text{ m/s} \rightarrow \\ + (-15 \text{ m/s}) \end{array} = \begin{array}{l} v_f - (-15 \text{ m/s}) \\ + (-15 \text{ m/s}) \end{array}$$

What is the mass of A  
Bowlingball if its Change in  
velocity is 7.5 m/s Left  
And its impulse is 33.75 kg m/s left.

$$m = ?$$

$$m = 4.5 \text{ kg}$$

$$\Delta v = -7.5 \text{ m/s}$$

$$\Delta p = -33.75 \text{ kg m/s}$$

$$\Delta p = m \Delta v$$

$$\begin{array}{r} +33.75 \text{ kg} \\ \hline +7.5 \text{ m/s} \end{array} = m \begin{array}{r} (-7.5 \text{ m/s}) \\ \hline -7.5 \text{ m/s} \end{array}$$