Prior to Spring Break, we had been working on the conservation of momentum. Some of you were away on the Europe trip but have hopefully gotten the notes from your classmates. If not, there were extra copies of the notes with the sub packages last week.

For today's class, we will explore the last topic of momentum known as impulse. The notes are on the website.

Impulse (Imp) = F t= Δp

That is to say, impulse is equal to the change in momentum which is also equal to the amount of force multiplied by time. Generally speaking, the majority of questions we deal with involve finding impulse from the change in momentum.

Example 1: A hockey player (m=78kg) hits the boards with a velocity of 3.1m/s and rebounds off the boards with a velocity of 1.5m/s. The player hit the boards for 0.75s. What was the impulse of the hockey player? With what force did the boards provide the player with?

m=78kg

vi=3.1m/s

vf = -1.5m/s (negative because the velocity is in the opposite direction of the initial velocity)

t=0.75s

Impulse= ?

Imp= Δp= mvf-mvi

 (78)(-1.5) - (78)(3.1) = -124.8 Ns (Newton seconds) = 120Ns

Imp=F t

$F=\frac{Imp}{t}=\frac{-124.8}{0.75}=-166.4N = 170N$

Using your notes and the above example, please download and try momentum\_worksheets.docx from www.mrbrick.weebly.com under physics 40S files, under momentum.