Momentum + Impulse

Momentum: $\vec{p} = m\vec{v}$

impulse: $\vec{J} = \vec{F}\Delta t$ (the area under a F-t graph)

impulse-momentum theorem: $\vec{J} = \Delta\vec{p}$

or $\vec{F}\Delta t = m\Delta\vec{v}$

PP|200

37. From 31: $\vec{J} = \vec{F}\Delta t$

$\vec{J} = (1.23 \times 10^7 N[S])(21.0 \times 10^{-3} s)$

$\vec{J} = 258300 N \cdot s\ [S]$

$\vec{J} = \vec{F}\Delta t$

$\vec{F} = \dfrac{\vec{J}}{\Delta t}$

$\vec{F} = \dfrac{258300 N \cdot s\ [S]}{57.1 \times 10^{-3} s}$

$\vec{F} \doteq 4.52 \times 10^6 N\ [S]$

TEST - Chapters 4 + 5

Chapter 4 - Weight + Friction

$\vec{F_g} = m\vec{g}$ (weight)

$F_f = \mu F_N \Rightarrow$ constant velocity $F_f = F_a$
all is horizontal $F_N = F_g$

DRAW A FBD!!

Chapter 5 - Newton's Laws

* NOT: p168-176 or p188-194 (Forces at angles)

1. Newton's First Law (Law of Inertia)
2. Newton's Second Law ($\vec{F}_{net} = m\vec{a}$)
   - DRAW A FBD
   - Dynamics $\xleftrightarrow{a}$ Kinematics
3. Newton's Third Law (Action-Reaction) ($\vec{F}_{A\text{ on }B} = -\vec{F}_{B\text{ on }A}$)

momentum ($\vec{p} = m\vec{v}$)

impulse ($\vec{J} = \vec{F}\Delta t$)

impulse-momentum Theorem ($\vec{J} = \Delta\vec{p}$ or $\vec{F}\Delta t = m\Delta\vec{v}$)

↳ this can be used to solve Newtons 2nd Law problems (use imp-mo if specifie

Chapter 5 Review

p208/23,27,29,30,32-35,37-40