

Phys171 - Mon 3/5

Today: Chapter 9; Midterm 1 returned 10 min before end of class

Tue Chapter 9.6; 9.7

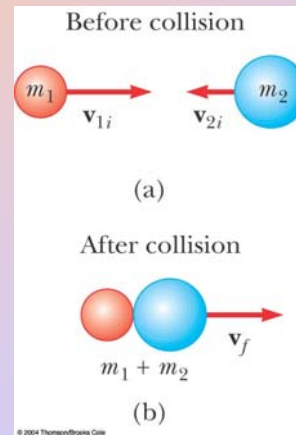
Thu start Ch 10 (plus quiz on Ch 9)

Two people on roller blades throw a ball back and forth. After a couple of throws, they are (no friction, no brakes)
(© Mazur)

1. standing where they were initially.
2. standing farther away from each other.
3. standing closer together.
4. moving away from each other.
5. moving toward each other.

Perfectly Inelastic Collisions

- Since the objects stick together, they share the same velocity after the collision
- $m_1\mathbf{v}_{1i} + m_2\mathbf{v}_{2i} = (m_1 + m_2)\mathbf{v}_f$



Impulse and Momentum

From Newton's Second Law: $d\mathbf{p} = \mathbf{F} dt$

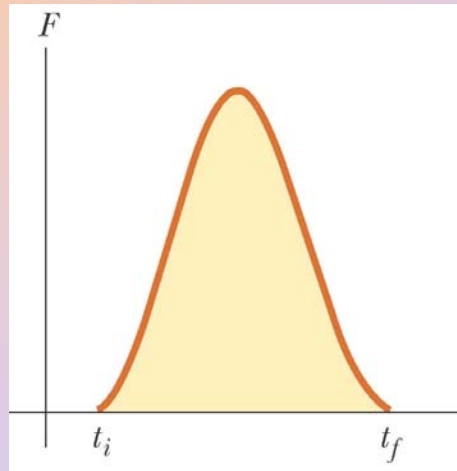
Integrating to find the change in momentum over some time interval

$$\overline{\Delta\mathbf{p}} = \overline{\mathbf{p}}_f - \overline{\mathbf{p}}_i = \int_{t_i}^{t_f} \overline{\mathbf{F}} dt = \overline{\mathbf{J}}$$

- The integral is called the *impulse*, \mathbf{J} , of the force \mathbf{F} acting on an object over Δt

More About Impulse

- Impulse: vector quantity
- Magnitude of impulse: area under force-time curve
- Dimensions of impulse:
M L / T



Midterm 1

	1 F	0	1
Today: Chapter 9	26 D-	0.667	1
	32 D	1	3
	38 D+	1.33	1
Tue Chapter 9	44 C-	1.66	2
	50 C	2	3
	56 C+	2.33	3
	62 B-	2.66	1
	68 B	3	1
	74 B+	3.33	1
	80 A-	3.66	5
	86 A	4	2
	92 A+	4.33	4