PHYS 1443 – Section 003
Lecture #10

Wednesday, Oct. 16, 2002
Dr. Jaehoon Yu

1. Linear momentum and Force
2. Linear Momentum Conservation
3. Impulse and Linear Momentum
4. Collisions in One and Two Dimension

Today's homework is homework #11, due 12:00pm, next Wednesday!!

Reminder

- I need to see the following students:
  - Matt Andrews
  - David Hunt
  - Dhumil Patel

Linear Momentum

The principle of energy conservation can be used to solve problems that are harder to solve just using Newton's laws. It is used to

A new concept of linear momentum can also be used to solve physical problems, especially the problems involving collisions of objects.

Linear momentum of an object whose mass is m and is moving at

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

What can you tell from this definition about momentum?

1. Momentum is a vector quantity.
2. The heavier the object the higher the momentum
3. The higher the velocity the higher the momentum
4. The change of momentum in a given time interval

What else can use see from the definition? Do you see force?

$$\frac{d\vec{p}}{dt} = \frac{d}{dt}(m\vec{v}) = m\frac{d\vec{v}}{dt} = m\vec{a} = \vec{F}$$