Vocabulary: 2D Collisions

Vocabulary

- Center of mass – the point at which all the mass of a body or system can be considered to be concentrated when analyzing the motion of that body or system.
  - Two-dimensional objects are able to balance on their center of mass.
- Conservation of energy – the principle that the total energy in a closed system remains constant.
- Conservation of momentum – the principle that the total *momentum* in a closed system remains constant.
- Elasticity – a measure of how readily an object returns to its original shape after it has collided with another object.
- Kinetic energy – energy of motion.
  - Kinetic energy is represented by the symbol *KE* or simply *K*.
  - The formula for kinetic energy is $KE = mv^2 / 2$.
- Momentum – a measure of how difficult it is to stop a moving object.
  - Momentum is represented by the symbol *p*.
  - Momentum is the product of an object's mass and *velocity*: $p = mv$.
  - If mass is measured in kilograms (kg) and velocity is measured in meters per second (m/s), the units of momentum are kilogram-meters per second (kg·m/s).
- Speed – the rate at which an object is changing its position.
  - Speed is equal to the magnitude of velocity.
  - Average speed is equal to distance divided by time: $v = d \div t$.
- Vector – a representation that specifies the direction and magnitude of a quantity.
  - In physics, vectors are used to represent displacement, velocity, acceleration, force, and other quantities that have a specific direction.
  - Vectors are represented visually by arrows.
- Velocity – the speed and direction of a moving object.
  - Motion to the right or upward is considered positive and motion to the left or downward is negative.