

## Chapter 7 Objectives

1. Be able to interpret the integral of an  $F_{net}$  vs  $t$  plot as the impulse received by the object subject to  $F_{net}$ .
2. Be able to calculate the impulse received by an object from its mass and its change in velocity.
3. Be able to find the momentum possessed by an object from its mass and velocity.
4. Be able to state how the impulse received by an object affects its momentum.
5. Be able to calculate the velocity change of an object of known mass when it is subject to a specified constant net force for a specified amount of time.
6. Be able to determine the change in momentum of an object given its initial momentum vector and its final momentum vector.
7. Be able to state the conditions under which momentum in a system is conserved.
8. Be able to identify interactions and systems in which momentum is conserved.
9. When two objects interact, for example in a collision, be able to use momentum conservation to find any unknowns among the masses and velocities of the interacting objects. This means that you will have to figure out the expression for the momentum of a system in its initial situation and in its final situation as well as any momentum acquired or lost because of an impulse.
10. Be able to describe what is meant by “elastic” collisions and by “perfectly inelastic” collisions.
11. Given the positions and masses of several particles, be able to determine their center of mass.