Physics 20

3.4 Newton’s Third Law

1. While standing on a horizontal frictionless surface, two students Austin and Brian, push against each other. Austin has a mass of 38 kg and is accelerating at 0.60 m/s2 east. If Brian is accelerating at 0.75 m/s2 west, what is his mass?

2. While standing on a frictionless surface a 50.0Kg student pushes against a wall with an average force of 125N east for 0.110 s. Calculate the velocity of this student at 0.110s.

3. A kg rocket is travelling vertically upward at a velocity of 11 m/s. The rocket is accelerated uniformly to a velocity of 22 m/s up in a time of 0.75 s by the expulsion of hot gases. What is the average force at which the gases are expelled by the rocket?

4. While standing on a horizontal surface a 45 kg student throws a 3.0 kg object to her right. During the throw the object was accelerated horizontally through a distance of 0.60 m from rest to a velocity of 9.6 m/s. Calculate the velocity of the student when the object is released.