

CLASS WORK 3/13

1) A 63.0 kg astronaut is on a spacewalk when the tether line to the shuttle breaks. The astronaut is able to throw a spare 10.0 kg oxygen tank in a direction away from the shuttle with a speed of 12.0 m/s, propelling the astronaut back to the shuttle. Assuming that the astronaut starts from rest with respect to the shuttle, find the astronaut's final speed with respect to the shuttle ~~immediately~~ after the tank is thrown.

2. A boy stands at one end of a floating raft that is stationary relative to the shore. He then walks in a straight line to the opposite end of the raft, away from the shore.

a) Does the raft move? Explain

b) What is the total momentum of the boy & the raft before the boy walks across the raft?

c) What is the total momentum of the boy & the raft ~~before~~ after the boy walks across the raft?