Keystone: Chapter 2

A rollerblader with mass 50 kg is enjoying a Sunday afternoon in the park. As she comes to a straight stretch in the path, she stops and decides to time herself.

As she starts her stopwatch, she notices that relative to the gazebo in the park, her position is $\langle 10,0,7 \rangle$ m. As she skates, she exerts a constant force on the ground. When she stops her timer it reads 10 s and her velocity relative to the gazebo is $\langle 7,0,-0.5 \rangle$ m/s.

a) What is her position relative to the gazebo when she stops her timer?

b) How much force was needed to get her to that speed?

c) What is her final momentum?