Bernoulli Equation Practice Worksheet

Problem 1

Water is flowing in a fire hose with a velocity of 1.0 m/s and a pressure of 200000 Pa. At the nozzle the pressure decreases to atmospheric pressure (101300 Pa), there is no change in height. Use the Bernoulli equation to calculate the velocity of the water exiting the nozzle. (Hint: The density of water is 1000 kg/m^3 and gravity g is 9.8 m/s^2. Pay attention to units!)]

Problem 2

Through a refinery, fuel ethanol is flowing in a pipe at a velocity of 1 m/s and a pressure of 101300 Pa. The refinery needs the ethanol to be at a pressure of 2 atm (202600 Pa) on a lower level. How far must the pipe drop in height in order to achieve this pressure? Assume the velocity does not change. (Hint: Use the Bernoulli equation. The density of ethanol is 789 kg/m3 and gravity g is 9.8 m/s2. Pay attention to units!)