Internal Flows 2

1. The plunger for a hypodermic needle is forced to move at 2 cm/s. What is the force? The flow is laminar.
   For the fluid: $\rho = 800 \text{ kg/m}^3$, $\nu = 5.5 \times 10^{-6} \text{ m}^2 / \text{s}$

2. Gas $(s.g = 0.68, \; \nu = 4.3 \times 10^{-7} \text{ m}^2 / \text{s})$ is siphoned from a tank through a 0.5cm tube. The inside surface of the tube is smooth and the tube length is 1.6m. The flow is turbulent. What is the flow rate?
   a) Neglect friction
   b) Include friction