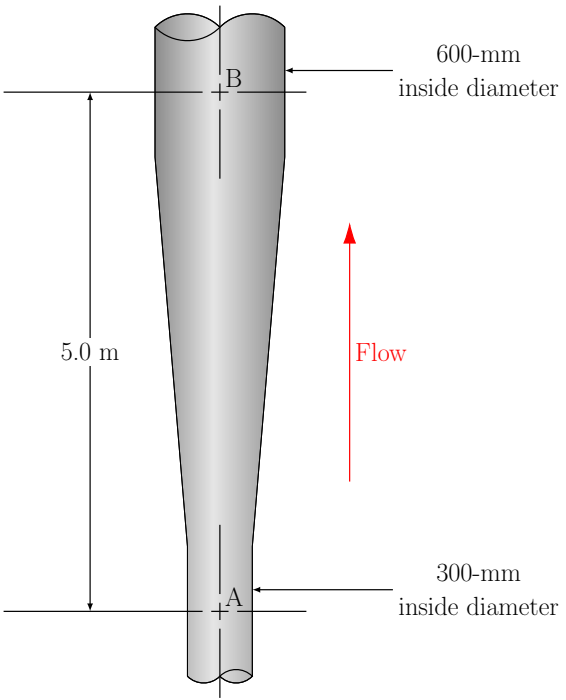
1. A tank contains 8733 lbs of water at room temperature. How many hours would it take to empty the tank if a pump removes 2.5 gallons of water from the tank every minute.

2. If 400 L/min of fluid flows through a DN 50 Schedule 80 steel pipe what is the resulting average velocity (in m/s) of flow?

3. What is the smallest size standard Schedule 40 steel pipe that would carry 2.80 L/min of oil with a an average flow velocity below 0.3 m/s? Report your answer as a metric Nominal Pipe Size (DN).

4. An aneurysm is an abnormal enlargement of a blood vessel such as the aorta. A patient's abdominal CT scan reveals an abnormal abdominal aortic diameter of 5.0 cm compared to their normal aortic diameter of 2.5 cm. If blood of density 1060 kg/m^3 travels through the normal portion of the aorta at a speed of 40 cm/s by how much does the pressure in the abnormal region exceed that of the normal region? Report your answer in kPa.

5. Turpentine is flowing at 0.45 m^3/s in the fabricated tube shown below. If the pressure before the enlargement at A is 500 kPa what is the pressure at point B?



6. Octane is flowing at 10 gpm from a standard 1-in Schedule 40 steel pipe to a standard 2-in Schedule 40 steel pipe. The pipes are horizontal. What is the difference in pressure (in psi) between the two pipes?