Assignment 7-1

Open up your favorite web browser and go to http://web.mit.edu/fluids/www/Shapiro/ncfmf.html Watch the 30-minute video titled "Pressure Fields and Fluid Acceleration" and answer the following questions:

a) In the video, water flows through a venturi that discharges to the atmosphere. If the flow speed is increased to a "high" enough value, what unusual physical phenomenon may be observed at the throat of the venturi? Explain why it happens. Give a scenario in which this phenomenon is undesirable.

b) Towards the end of the video a turntable, with several vertical manometer tubes mounted along its diameter, is rotated at a constant angular speed. How does pressure change along the radial direction? Where is the highest pressure? Is the result consistent with that predicted by the Bernoulli Equation? Explain.