CEE 345 Part 2, Assignment #3, Due 5/25, 11:30am

1. Munson 10.5.

2. Munson 10.12.

3. Water flows in a rectangular channel at a rate of $q = 20$ cfs/ft. When a Pitot tube is placed in the stream, water in the tube rises to a level 4.5 ft above the channel bottom. Determine the two possible flow depths in the channel. Illustrate this flow on a specific energy diagram.

4. Water is flowing in a rectangular channel that has a section with a constant width of 4 ft, followed by a section where the channel gradually narrows and then stabilizes at a width of 3 ft. (a) If the flow rate is $Q = 25$ ft^3/s and the upstream depth is $y_1 = 2$ ft, what is the downstream depth? (b) Sketch a specific energy diagram for this system, and describe the changing channel width in the context of this diagrem.

5. Waterflows in a rectangular channel with a flow rate per unit width of $q = 1.5$ m^2/s and a depth of 0.5 m at section (1). The headloss between sections (1) and (2) is 0.03 m. Plot the specific energy diagram for this flow and locate states (1) and (2) on the diagram. Would it be possible to have an energy loss of 0.06 m between the two sections?