[1].
Upon what slope should the flume shown in Fig. 10-17 be laid in order to carry 522.5 cfs? (n = 0.013)

[2].
A rectangular channel, $n = 0.012$, 3.05 m wide laid on a slope of 0.0049, carries 13.6 m$^3$/s. The channel is to be contracted to produce critical flow. What width of contracted section will accomplish this, neglecting any loss in the gradual reduction in width?

[3].
A rectangular flume ($n = 0.013$) is 6 ft wide and carries 66 cfs of water. At a certain section $F$, the depth is 3.20 ft. If the slope of the channel bed is constant at 0.000400, determine the distance from $F$ where the depth is 2.70 ft. (Use one reach.)

[4].
The depth of flow over a rectangular broad-crested weir is measured to be 0.6 ft. What is the subcritical depth of flow upstream from the broad-crested weir for this case if the weir has a height of 1.2 ft? What is the discharge in the channel if the channel width is 2.5 ft?