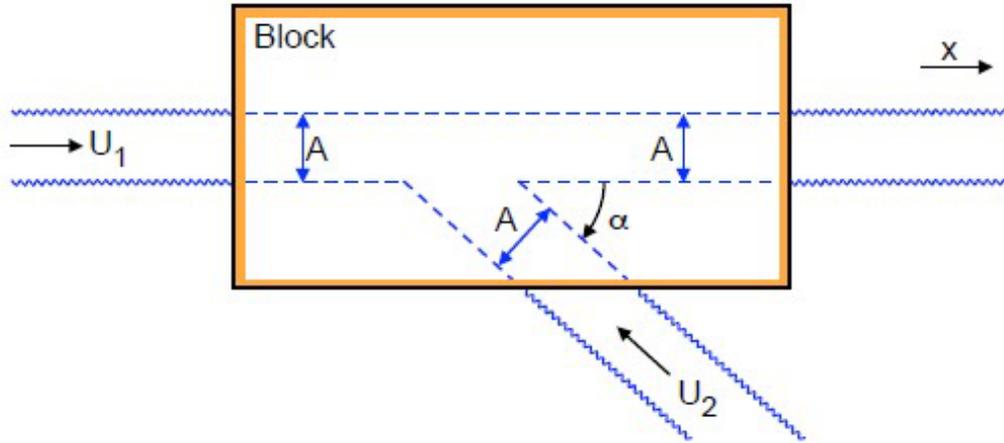## Problem 220L

The rectangular block shown below has holes drilled into it as indicated by the dashed lines. The holes all have the same cross-sectional area, A.

Flexible hoses (shown by wavy lines) are attached to the three openings and water is pumped in two of them with velocities U_1 and U_2 as shown. An external force must be applied to the block to retain it in a fixed position. Find the ratio U_1/U_2 for which the component of this external force in the x direction is zero. Assume the water is inviscid and incompressible; neglect gravity; assume uniform velocity profiles at the three openings. The answer contains only the angle, α.