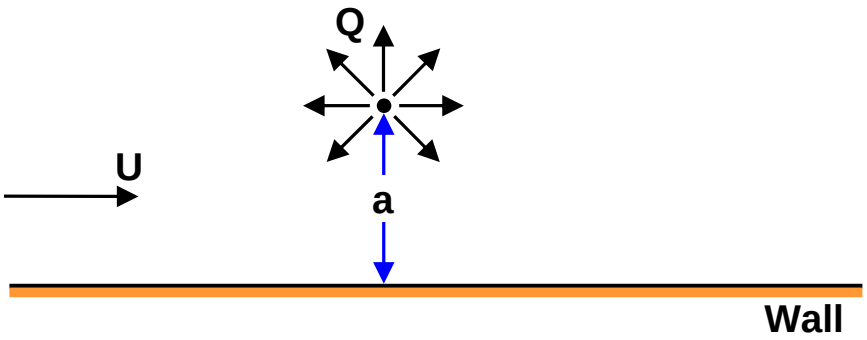
Problem 120D

This problem concerns a planar, potential flow of far field velocity, U, parallel to a plane wall. Fluid is injected into this flow at a distance, a, from the wall and at a volume flow rate, Q, per unit depth normal to the sketch:



The fluid injection can be represented by a planar or line source and the flow remains planar. Determine the particular volume flow rate, Q, above which the injected fluid reaches the wall. The answer involves U and a.