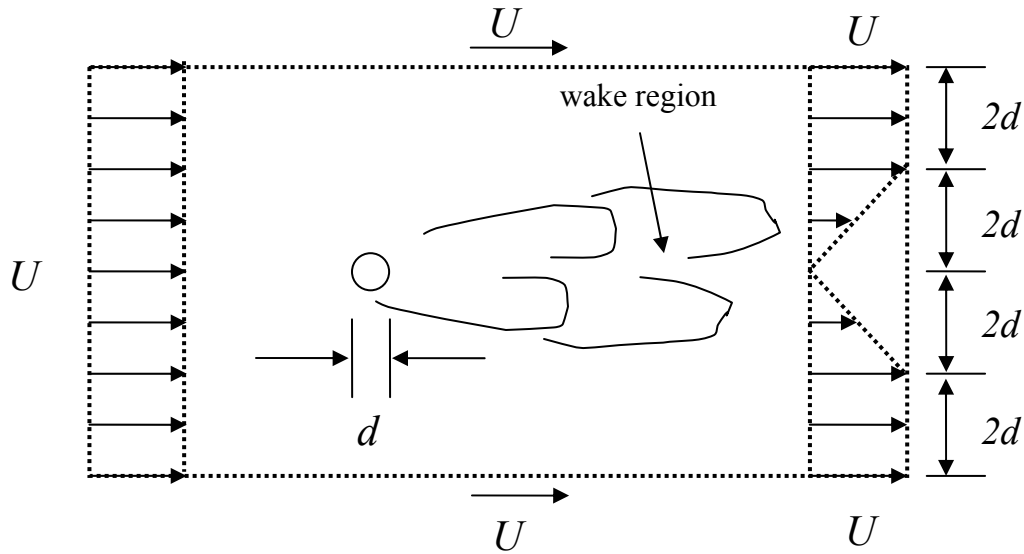1. <u>Drag on a cylinder due to a cross-flow in open air</u>: In an experiment to determine the
    drag on a cylinder due to a uniform cross-flow U, a circular cylinder of diameter d
    was immersed in a steady, two-dimensional incompressible flow in open air.
    Measurements of velocity and pressure were made at the boundaries of a fixed
    control volume shown below.   The pressure was uniform over the entire control
    surface. The streamwise velocity component is indicated in the following figure.
    Based on the measured data, determine the <u>drag coefficient</u> on the cylinder (based on
    the projected frontal area.)

2. <u>Drag on a cylinder due to a cross-flow in a wind tunnel</u>: In an experiment to
    determine the drag on a cylinder due to a uniform cross-flow U, a circular cylinder of
    diameter d was immersed in a steady, two-dimensional incompressible flow in a wind
    tunnel. Measurements of the velocity profile downstream of the cylinder were made
    as shown below.   Assume the tunnel walls to be relatively frictionless, compared to
    the flow around the cylinder. Determine the <u>drag coefficient</u> on the cylinder (based
    on the projected frontal area.)