Solution for HW1

**S1.1**

Since the velocity distribution is not linear, the velocity gradient varies with y.

The velocity gradient is smallest when y=16mm. Thus,

Note: When y=0, so . Hence the equation can not be used at this point.

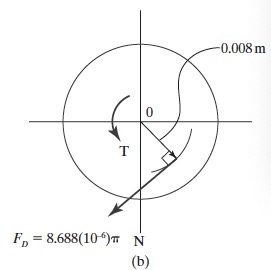
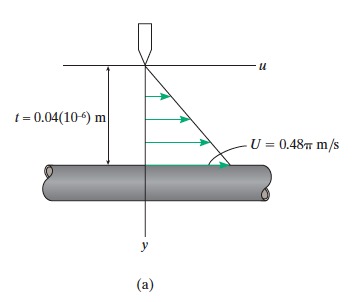
**S1.2**

Water is a Newtonian fluid.

Applying Newton’s law of viscosity

Here, the area per unit length of plate is A=3m. Thus,

**S1.3**



**S1.4**

Writing the force equation of equilibrium along the vertical by referring to the FBD of the droplet in Fig. a

