CFD PreLab 1 Questions (Pipe Flow)

(to be turned in at the beginning of PreLab1)

57:020 Mechanics of Fluids and Transfer Processes

By Tao Xing and Fred Stern

1. What is the correct "CFD Process"?

2. What is the geometry? How many parameters do you need to create that geometry?

3. What is the definition of Reynolds number, assume u is the mean inlet velocity, D is the pipe diameter, and v is the fluid viscosity.

4. What is the typical Reynolds number to distinguish laminar and turbulent pipe flows?

5. How many kinds of boundary conditions you will use for CFD PreLab 1? List them with values.

6. What are the initial conditions for CFD PreLab 1 and CFD Lab 1?

7. What are the iteration numbers and convergence limits you will use for CFD PreLab 1 and CFD Lab 1?

8. How does FlowLab determine if a calculation is converged or not?