Some helpful module 2 examples from Morrison, <u>An Introduction to Fluid Mechanics</u>, Cambridge University Press, 2013.

Example 1.11 (page 52) At what position does the velocity reach a maximum (with velocity field given)

Example 1.12 (page 55) What is the average velocity in a slit? (with velocity field given)

Example 1.25 (page 79) Using curvilinear coordinates (compare cylindrical with cartesian); includes boundary conditions for Couette flow (cup and bob tangential flow)

Figure 5.7 (page 352) Drag in the x-direction; dS for force on the wall

Section 6.2.2: Boundary Conditions (page 464 and following)

Section 6.2.3 (page 472) Engineering Quantities from Velocity and Stress Fields
    ~~Section 6.2.3.1 Total force on a wall~~
    ~~Section 6.2.3.2 Torque~~
    Section 6.2.3.3 Flow Rate and Average Velocity (page 481 and following)
    Section 6.2.3.4 Velocity and Stress Extrema (page 483)

Example 6.11 (page 484) Find velocity maximum in Poiseuille flow plus drag in a slit

Example 7.2 (page 497) Pressure driven flow in a tube (Poiseuille flow in a tube)

Example 7.10 (page 544) Pressure driven flow in a slit; calculate velocity field, flow rate, and shear stress

Example 7.11 (page 549) Pressure driven flow in a finite duct; calculate velocity field, flow rate, and shear stress (too hard for us to solve, but we could write the boundary conditions and simplify the Navier-Stokes)

Example 8.2 (page 604) Stokes flow (creeping flow) around a sphere (too hard for us to solve, but we could write the boundary conditions and simplify the Navier-Stokes)