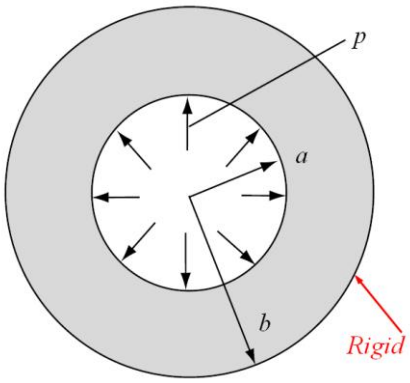
1. In class, we solved the problem of a thick-walled spherical shell subjected to a uniform pressure on both the inner and outer boundary. Resolve this problem by replacing the traction boundary condition on the outer radius b with a zero-displacement condition, i.e. $u_r(b) = 0$.



2. For a half-space subjected to a uniform pressure q applied over a circular surface area of radius a, determine the vertical displacement at a depth h right below the circle center.

3. For a half-space subjected to a uniform pressure q applied over a rectangular surface area $a \times b$, determine the vertical displacement at the symmetry center and four corners of the rectangle.

4. For a concentrated force applied on a small spherical cavity inside an infinite 3-D medium, investigate that if the following Love Strain Potential yields the correct solution

$$\varsigma = AR = A\sqrt{r^2 + z^2},$$

where A is a constant to be determined from force equilibrium condition.