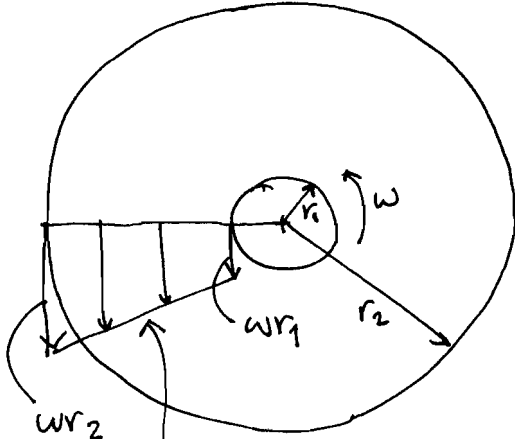
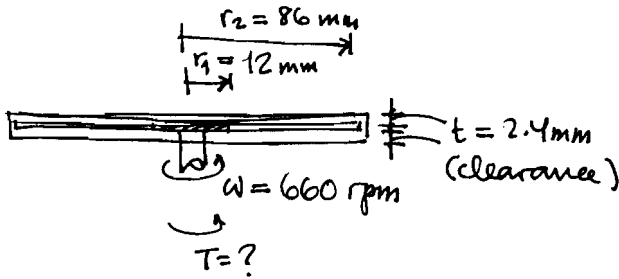
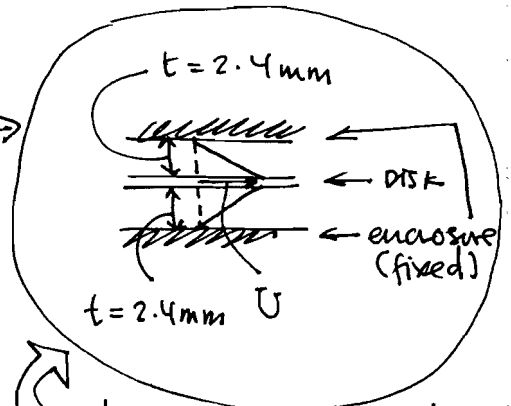


Hint on problem 2.25



Distribution of velocities on a radial direction. At any value r in $[r_1, r_2]$, the local disk velocity is tangential and equal to $U = \omega r$



looking towards center of disk from any edge at radial distance r

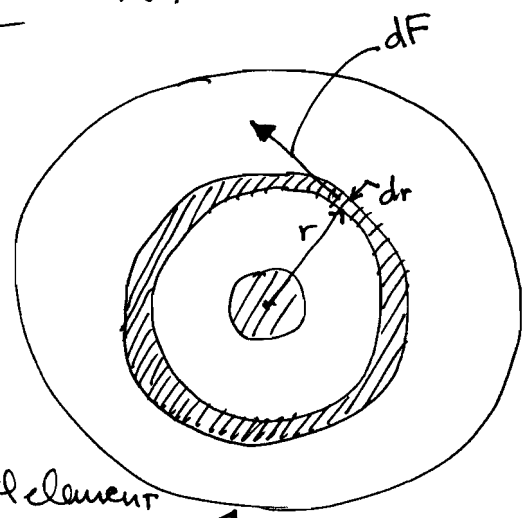
The local shear stress at that position can be estimated as

$$\tau(r) = 2\mu \frac{U}{t}$$

— Why the 2? —

To calculate the local force at radius r use

$$dF(r) = \tau dA$$



The local torque will be
 $dT = r dF = r \tau dA$

and the total torque will be

$$T = \int r \tau dA = \int dT$$

NOTE: The area element to be used is the radial element shown in the figure to the right

i.e., $dA = 2\pi r dr$

What are the limits of integration for T ?