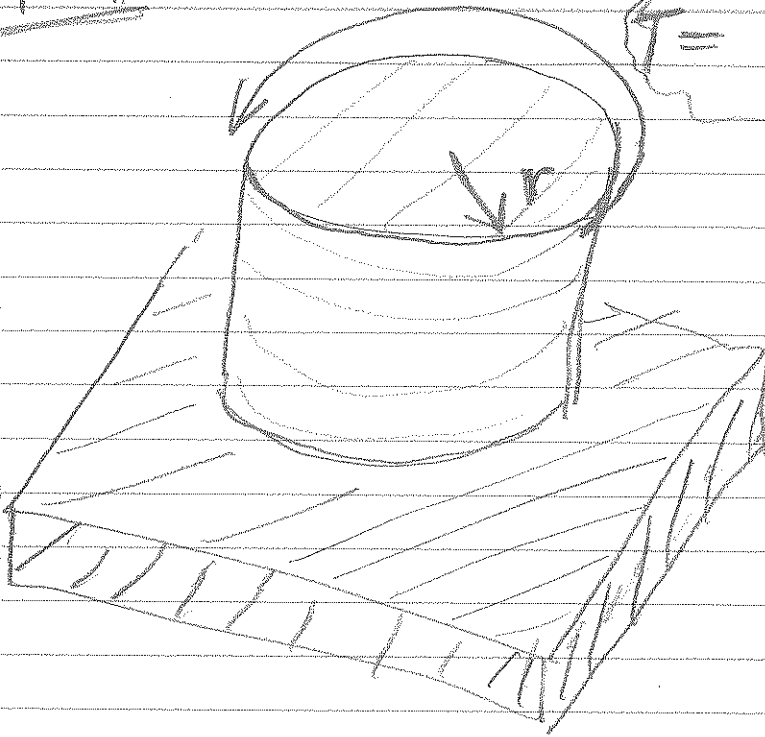


# Solid Cylinder

10.1



$T = ?$

Given

$$r = 18 \text{ mm}$$

$$\tau_{\text{max}} = 70 \text{ MPa}$$

$$\tau_{\text{max}} = \frac{Tr}{J}$$

$$\Rightarrow T = \frac{\tau_{\text{max}} J}{r} = \frac{\tau_{\text{max}} (\pi r^4 / 2)}{r}$$

$$= \frac{(70 \cdot 10^6 \text{ N/m}^2) \cdot \pi (0.018 \text{ m})^3}{2}$$

$$T = 641 \text{ Nm}$$