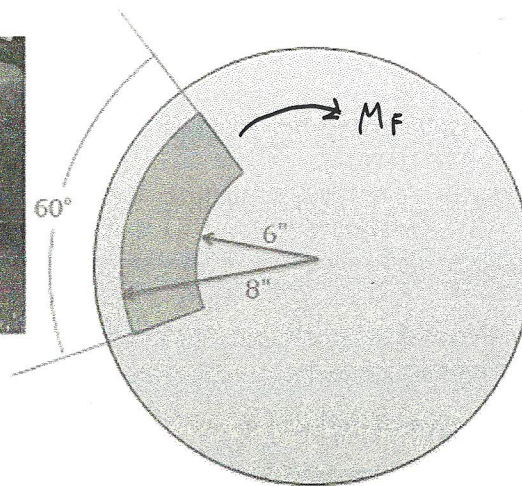


Question 2:

In the disc brake setup shown below, a pair of brake pads is pressed into the rotor with a force of 300 lbs. If the kinetic coefficient of friction between the brake pads and the rotor is .4, find the stopping torque exerted by the brake pads.



Contact Area

2 pads

$$M_F = \frac{4}{3} M_H F_{load} \left(\frac{R_o^3 - R_i^3}{R_o^2 - R_i^2} \right)$$

$$M_F = \frac{4}{3} (.4)(300 \text{ lbs}) \left(\frac{8 \text{ in}^3 - 6 \text{ in}^3}{8 \text{ in}^2 - 6 \text{ in}^2} \right)$$

$$M_F = 1691.4 \text{ in lbs}$$

$$= 140.9 \text{ ft lbs}$$