

Please show your work and draw a box around your answer to receive full credit.

- 1) Dowling, Problem 7.3
- 2) A solid circular shaft 1.0 m long must support a bending moment $M = 1$ kN-m and a torque $T = 1.5$ kN-m. A safety factor of $X = 2.0$ against yielding according to the von Mises failure criterion is required. What shaft diameter is required if the material is AISI 1020 steel? (use material properties in Table 4.2)

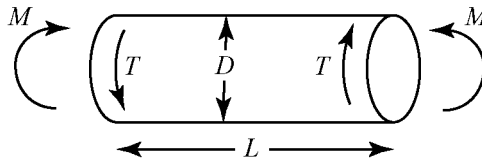


Figure 1. Solid circular shaft