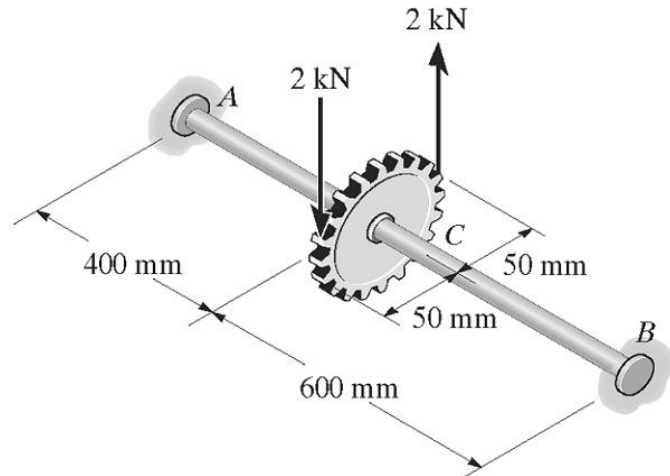


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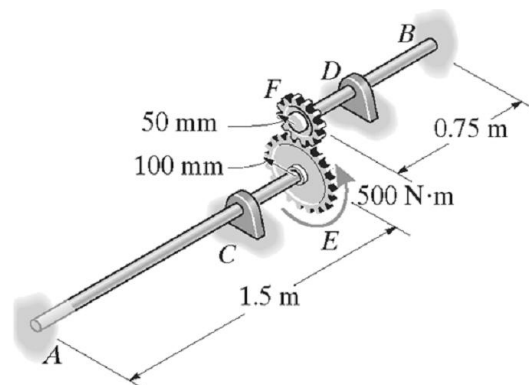
Student ID:

M23: Statically Indeterminate Problems – Torque Loaded Members

1. The shaft is made of tool steel, has a diameter of 40 mm, and is fixed at its ends A and B . If it is subjected to the couple shown, determine the maximum shear stress in regions AC and CB .



2. The two shafts are made of steel. Each has a diameter of 25 mm and they are connected using the gears fixed to their ends. Their other ends are attached to fixed supports at A and B . They are also supported by journal bearings at C and D , which allow free rotation of the shafts along their axes. If a torque of $500 \text{ N}\cdot\text{m}$ is applied to the gear E as shown, determine the reactions at A and B .



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3. The shaft of radius c is subjected to a distributed torque t , measured as torque/length of shaft. Determine the reactions at the fixed supports A and B .

