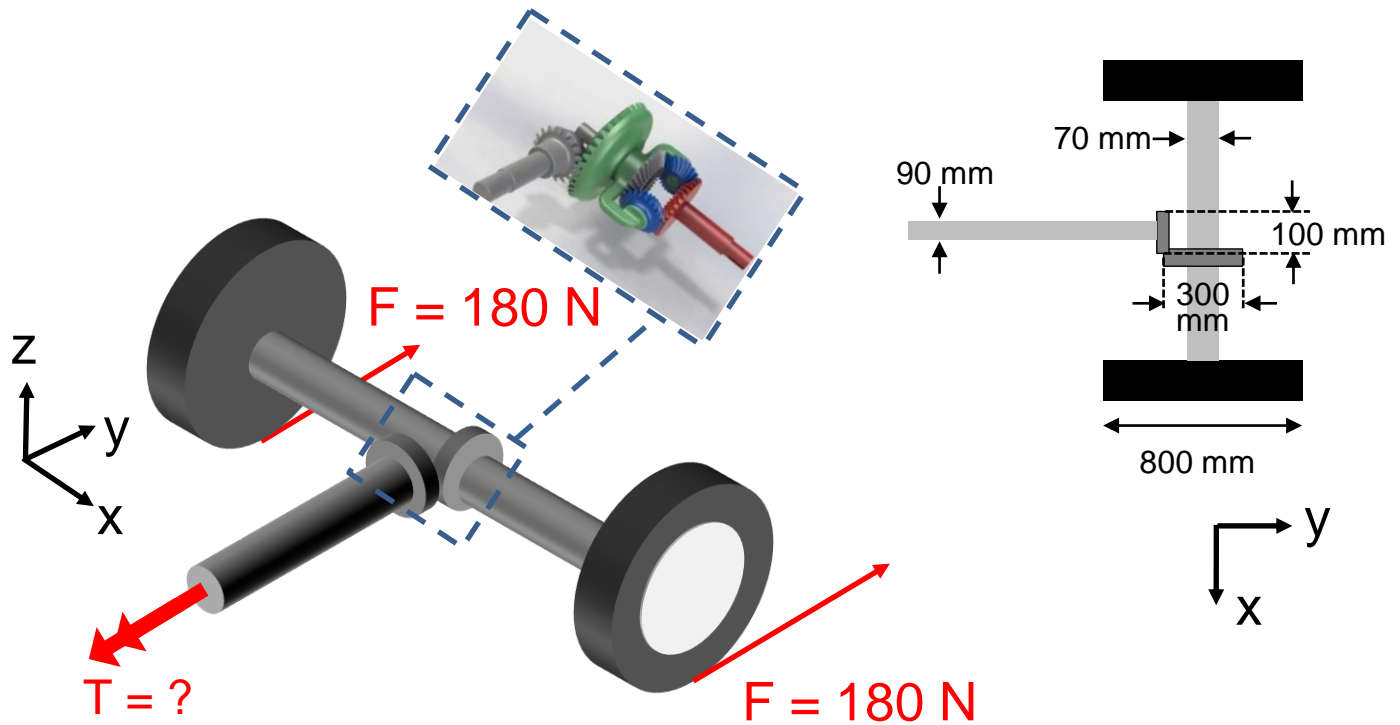


# Lecture 12 Quiz



(a) What torque needs to be applied to the drive shaft for each wheel to output a force of  $180\text{ N}$ ?

(b) (**completely separate from part a**) A drive shaft must be designed to operate at a torque of  $3200\text{ N}\cdot\text{m}$  with an outer diameter of  $90\text{ mm}$  and a length of  $1320\text{ mm}$ . Using a hollow aluminum tube, what inner diameter is required? The shear modulus of aluminum is  $27\text{ GPa}$ . The allowable shear stress in the aluminum is  $60\text{ MPa}$ .

