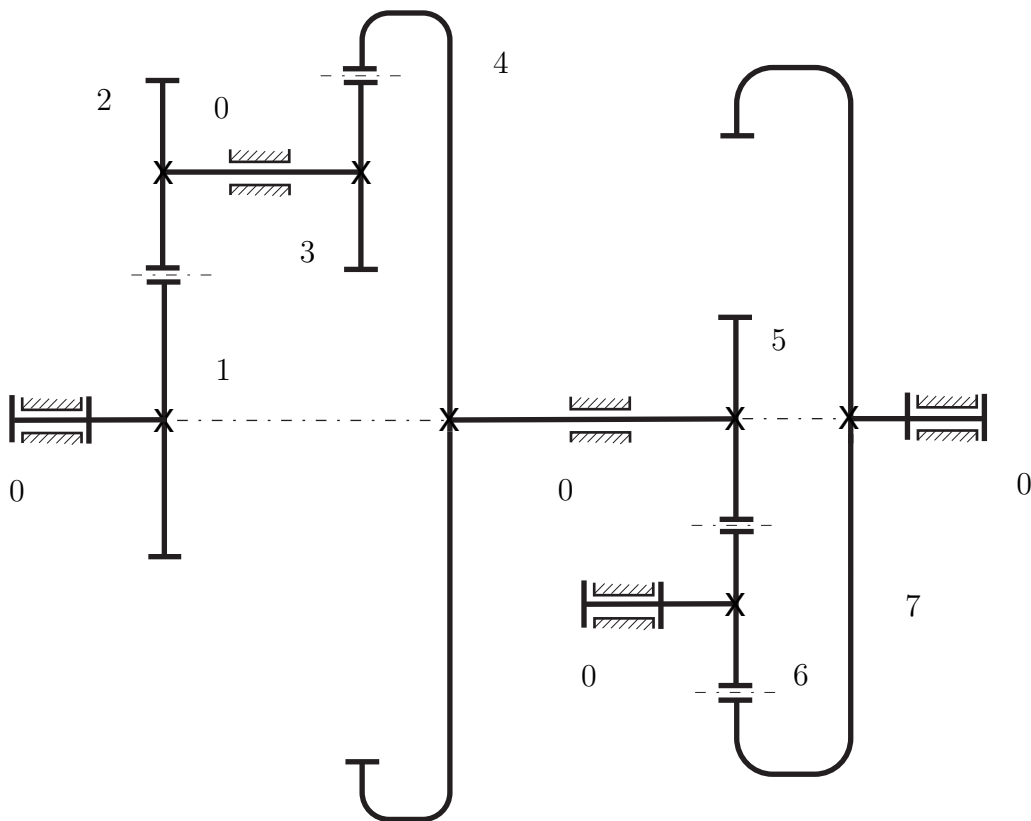


MECH 3230 - Machine Design
Gear Trains

Student's name and code _____

A gear train is shown in Figure. Gear 1 has $N_1 = 13$ teeth, gear 2 has $N_2 = 19$ teeth, ring gear 4 has $N_4 = 40$ teeth, gear 5 has $N_5 = 29$ teeth, and gear 6 has $N_6 = 24$ teeth. Gear 1 rotates with a constant input angular speed $n_1 = 2000$ rpm. The centers of the gears 1, 4, 5, and 7 are located on the same horizontal axis. The diametral pitch of the gears is 4 and the pressure angle of the gears is 20° . a) Determine whether there will be interference when full-depth involute teeth are used and find the contact ratios of the meshing gears. b) Find the angular velocity of the output gear 7.



Figure