CONCORDIA UNIVERSITY GINA CODY SCHOOL OF ENGINEERING and COMPUTER SCIENCE

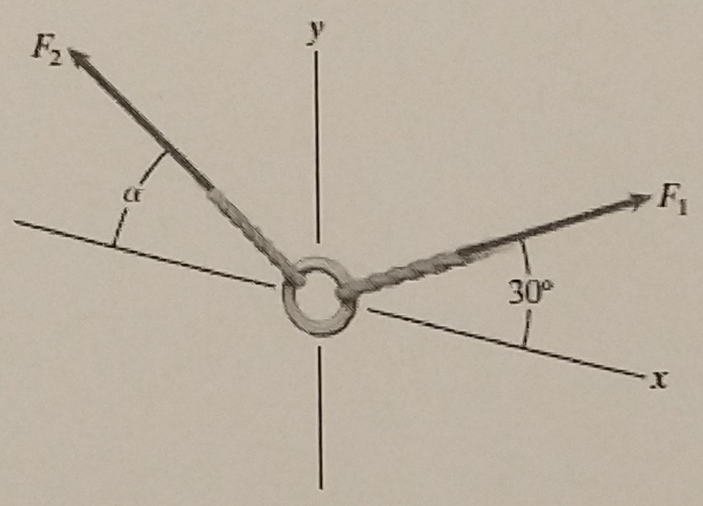
ENGR 245 – T (MECHANICAL ANALYSIS)

MIDTERM # 1

Attempt all questions. Only calculators permitted. Time – 60 minutes

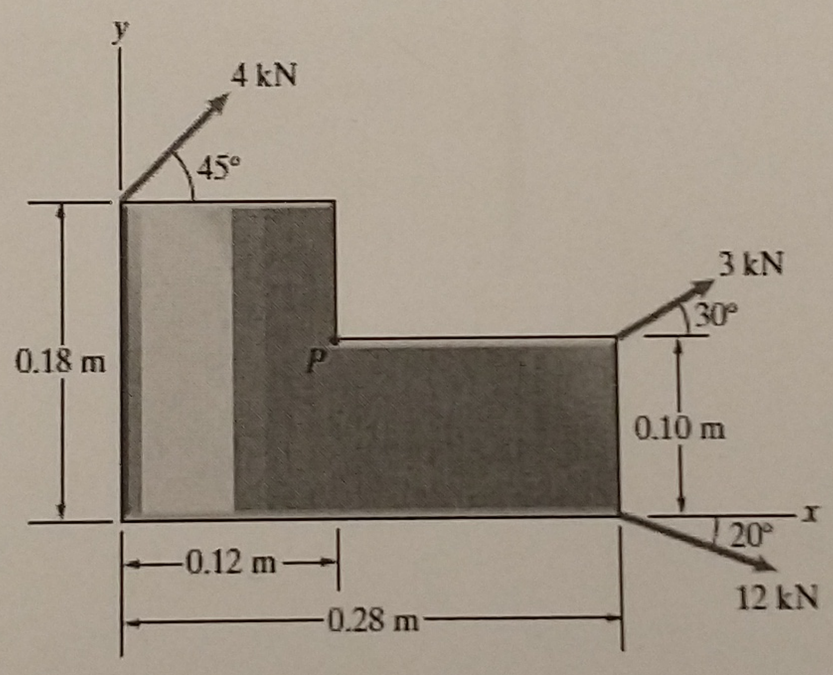
1) The ring weighs 5 lb and is in equilibrium. The force F1 = 4.5 lb. Determine the force **F2** and the angle **α**.

MARKS 6



2) Three forces act on the plate. Determine the sum of the moments of the three forces about point P.

MARKS 7



3) (a) Draw the free-body diagram of the beam. (b) Determine the reactions at the pin support A and at the roller B.

MARKS 7