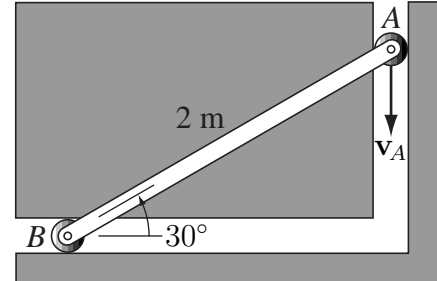# Problem Set 9
Due March 25, 1999

Professors Gray & Costanzo   Spring 1999

Problem 1

For the mechanism shown on the right, point A has a
constant linear velocity of 2 m/s down at the instant
shown, and the bar AB makes an angle of $30°$ with the
horizontal. Determine the angular velocity and acceler-
ation of the rod, and determine the velocity and acceler-
ation of point B.

Problem 2

The mechanism shown on the right consists of a crank,
connecting rod, and piston from an internal combustion
engine. You are given that the crank is rotating with an-
gular velocity ω and angular acceleration α. Given that
the length of crank AB is r and that the length of connect-
ing rod BC is L, determine the velocity and acceleration
of the piston C as a function of the crank angle θ. Note:
your answers should be a function of r, L, θ, ω, and α.