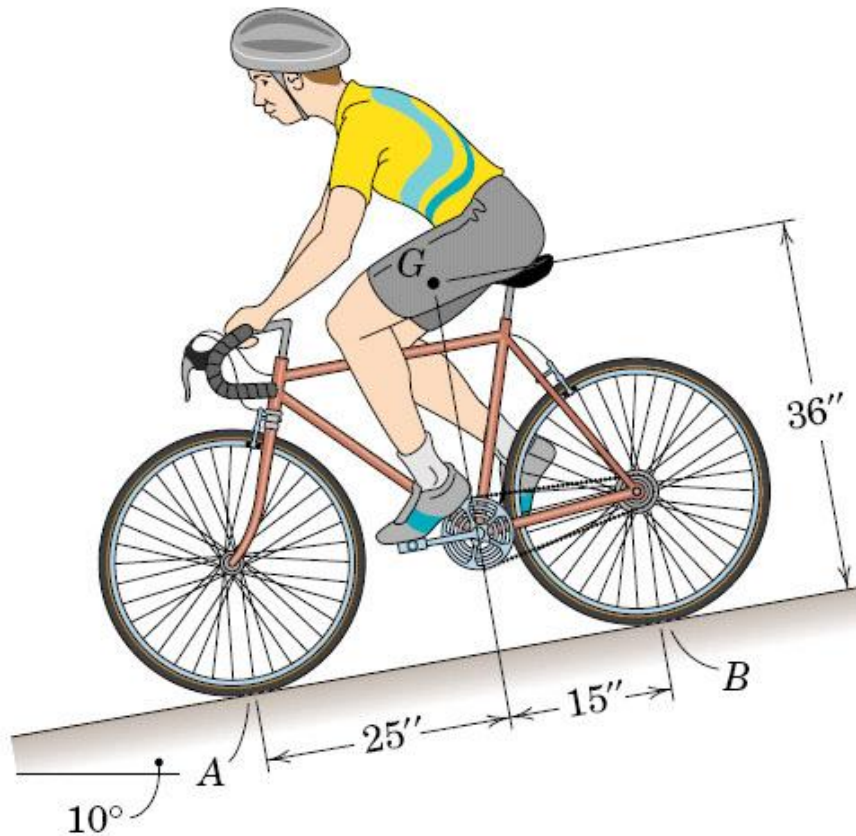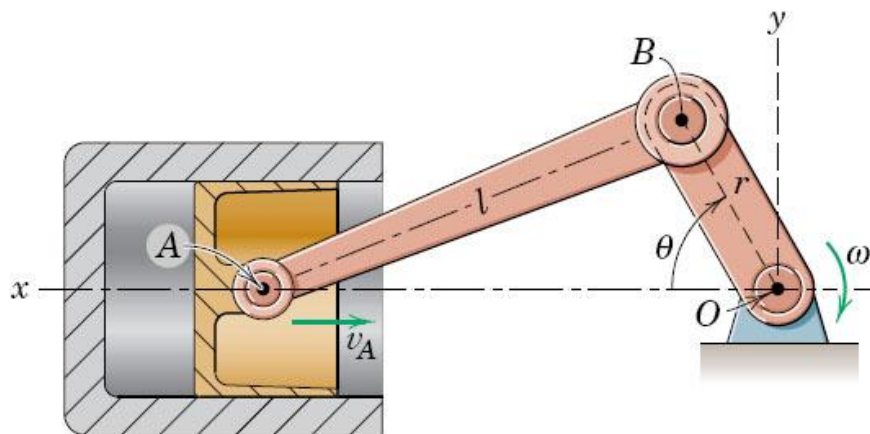# COURSEWORK #T1

1) The bicyclist applies the brakes as he descends the 10° incline. What deceleration
"a" would cause the dangerous condition of tipping about the front wheel A?
The combined center of mass of the rider and bicycle is at G.

COURSEWORK #T2

2) For the slider crank configuration shown, derive the expression for the velocity v_A of the piston as a function of θ. Plot v_A versus θ and find its maximum magnitude and the corresponding value of θ.

COURSEWORK #T3

3) A V belt speed reduction drive is shown where pulley A drives the two integral pulleys B which in turn drive pulley C. If A starts from rest at time t=0 and is given a constant angular acceleration α_1, plot expressions for the angular velocity of C and the magnitude of the acceleration of a point P on the belt, both versus time t.