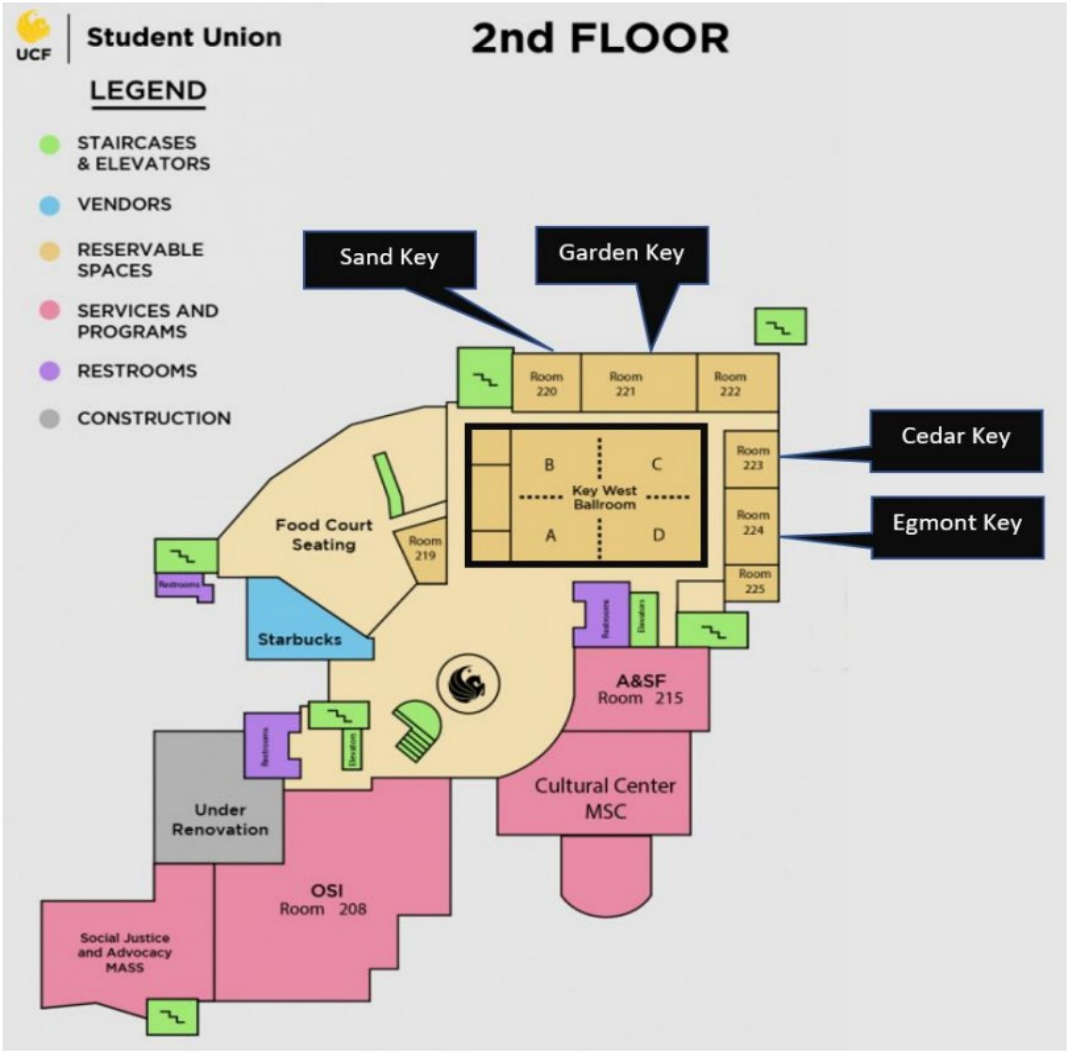
SARC Study Union
EGN3321

WEDNESDAY, APRIL 22					
Dynamics	EGN 3321	12:30 - 2:30pm	Garden Key	Tutor Penji	Kaleb B.

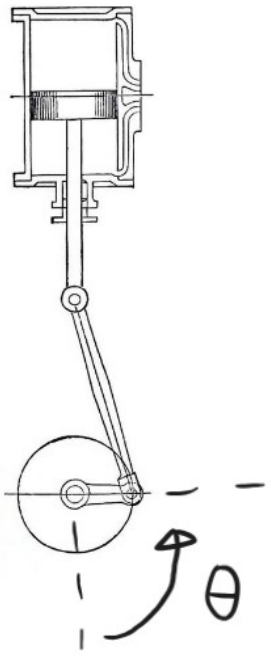
Note: This resource was created by a student without insight into your specific final exam. It includes the final exam from when I completed the course and relevant textbook material. However, the exam you'll face might contain different types of problems, so do not use this as your only study resource.



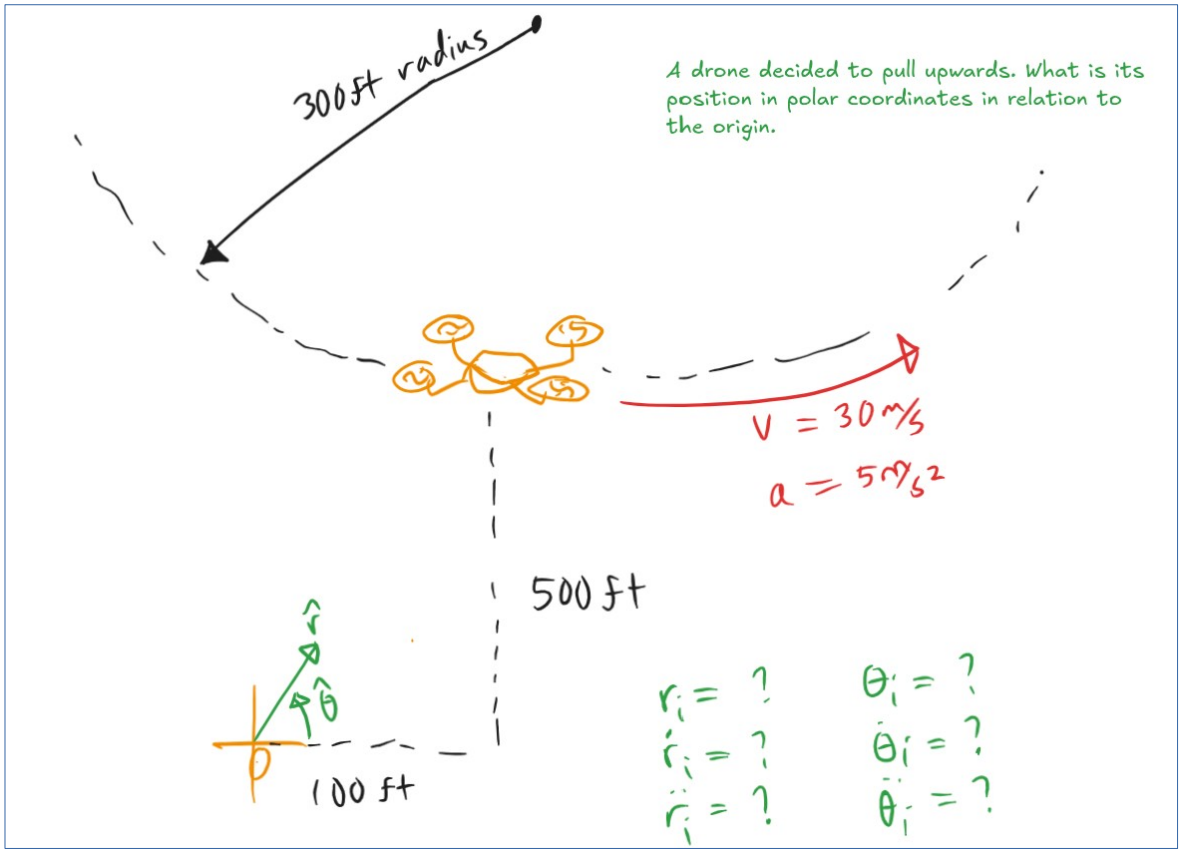
Q1

The short link is 200mm
The middle link is 850mm
The piston head's link is 700m

What is the velocity of the piston head when
- the crankshaft spins at 2000rpm CCW
- theta is at 180deg

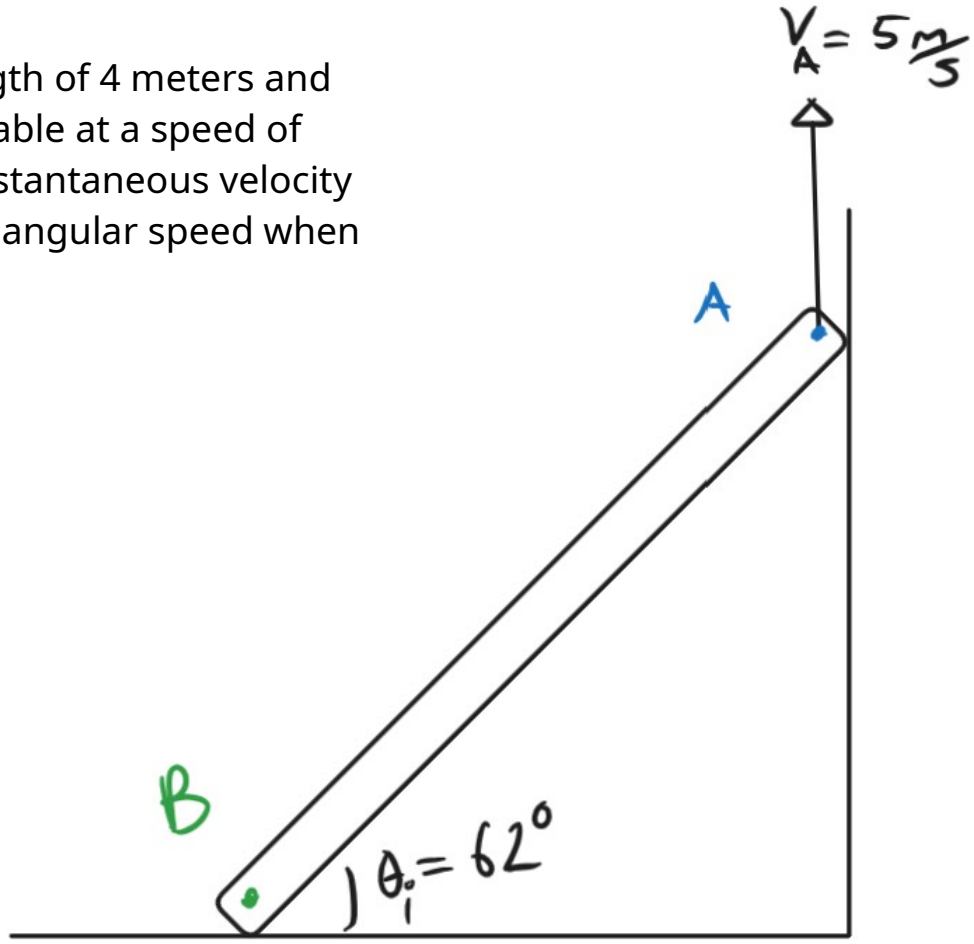


Q2


300ft radius
A drone decided to pull upwards. What is its position in polar coordinates in relation to the origin.
V = 30 m/s
a = 5 m/s²
500 ft
100 ft
r̂
θ̂
O
r_i = ?
θ_i = ?
ṙ_i = ?
θ̇_i = ?
r̈_i = ?
θ̈_i = ?

Q3

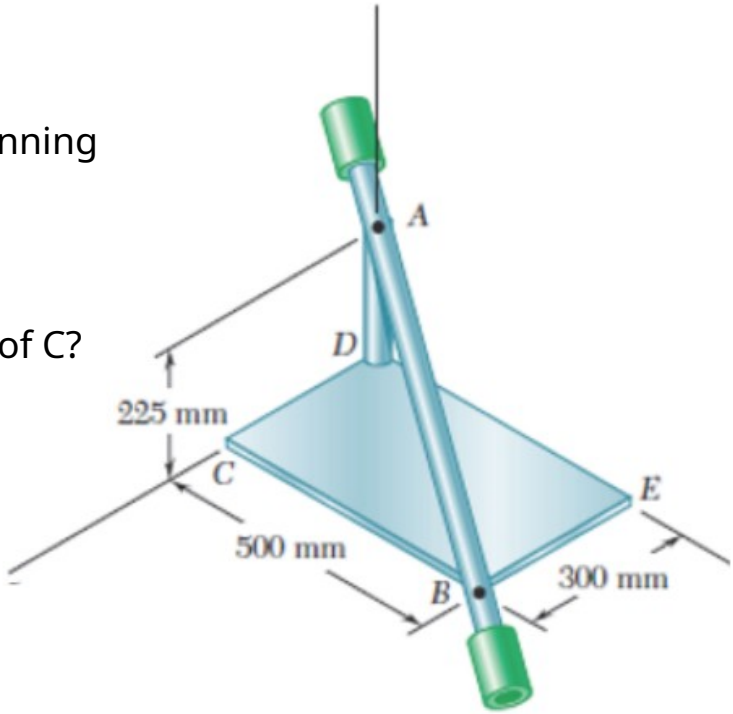
The beam has a length of 4 meters and is being lifted by a cable at a speed of 5m/s. What is the instantaneous velocity of B and what is the angular speed when theta is 62deg?



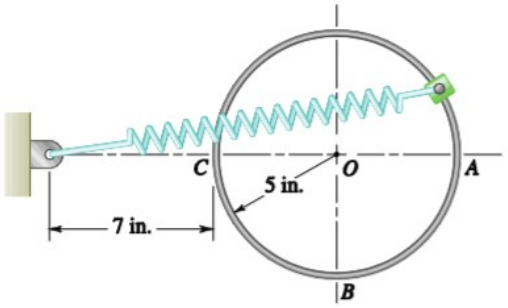
Q4

Viewed from B, the object is spinning clockwise at 120 rev/min.

What is the velocity vector of C?
What is the acceleration vector of C?



Q5



PROBLEM 13.72

A 1-lb collar is attached to a spring and slides without friction along a circular rod in a *vertical* plane. The spring has an undeformed length of 5 in. and a constant $k = 10$ lb/ft. Knowing that the collar is released from being held at A determine the speed of the collar and the normal force between the collar and the rod as the collar passes through B.

Q6

A golfer hits a golf ball with an initial velocity of 140 ft/s at an angle of 25° with the horizontal. Knowing that the fairway slopes downward at an average angle of 5°, determine the distance d between the golfer and Point B where the ball first lands.

