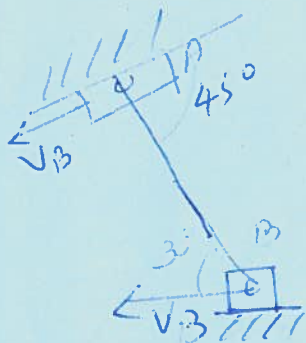


Assignment 2

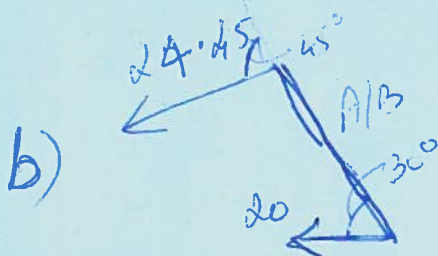
1. a Component of V_A along $AB =$
Component of V_B along AB



$$-V_A \cos 135 = V_B \cos 30$$

$$V_A \cos 45 = V_B \cos 30$$

$$V_A = 24.5 \text{ m/s}$$



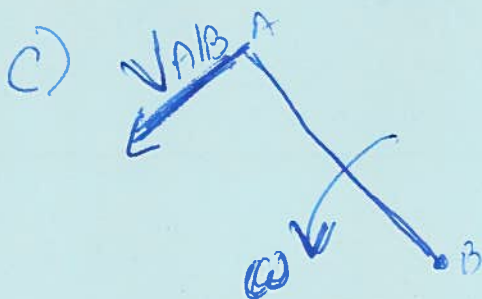
$$\vec{V}_{A/B} = \vec{V}_A - \vec{V}_B$$

Relative
velocity
of A relative to B

$$V_A = V_A \sin 45^\circ = 17.32$$

$$V_B = V_B \sin 30^\circ = 10$$

$$\vec{V}_{A/B} = 17.32 - 10 = 7.32 \text{ m/s}$$



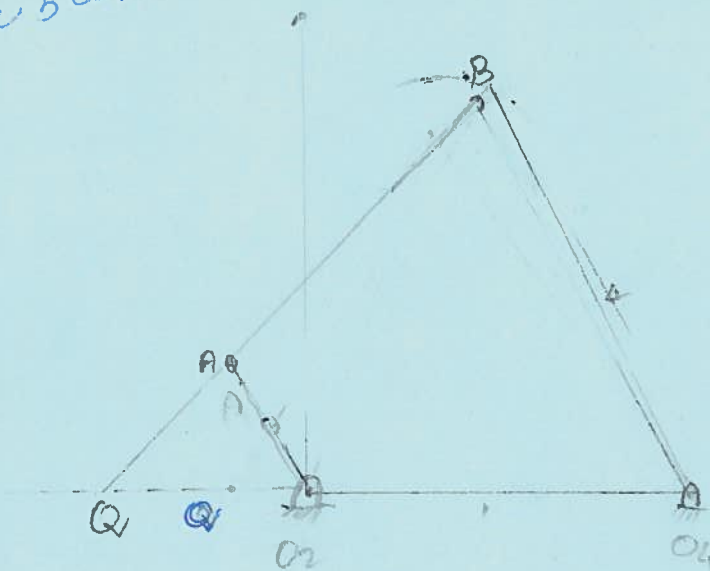
Angular velocity $\omega = \frac{V_R}{r}$

$$\omega = \frac{V_{A/B}}{AB} = \frac{7.32}{40} = 18.3 \text{ Rad/s}$$

18.3 Rad/s CCW

Assignment 2

Problem 2



$$\omega_2 = 50 \text{ Rad/s}$$

$$O_2 O_4 = 250$$

$$O_2 A = 100$$

$$AB = 250$$

$$O_4 B = 300$$

find ω

$$\frac{\omega_2}{\omega_4} = \frac{O_4 C}{O_2 A}$$

$$= \frac{50}{250} = 50 \times \frac{130}{380}$$

$$0.34^2$$

$$\frac{O_2 A}{O_2 O_4} = 0.34$$

$$\omega_4 = \frac{\omega_2 O_2 A}{O_4 B} = 17.1 \text{ Rad/s}$$

Problem 3

Find ω similar to problem 2

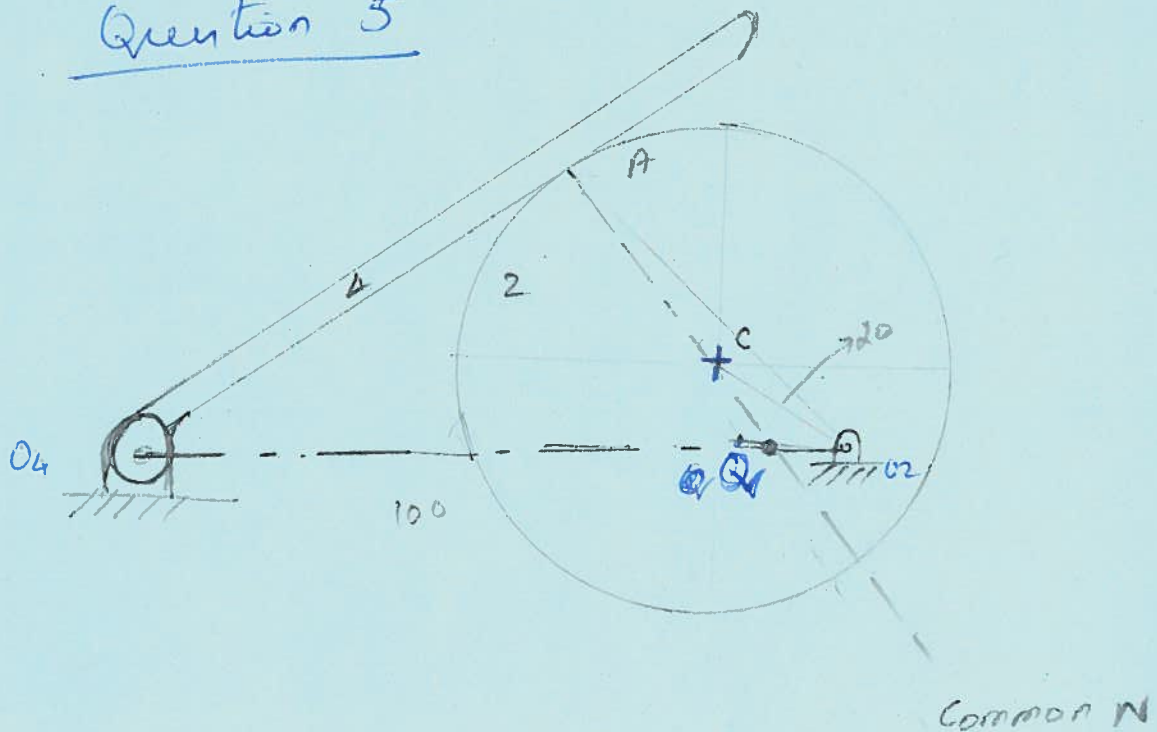
find ω_4 & then find V_B

Since ω_4 is angular velocity of link 4 & C is a point in it. V_C can be found.

$$O_2 A = 0.34 O_2 O_4$$

Assignment - 2

Question 5



Find \$Q\$ while drawing to scale

\$Q\$ is intersection of Common Normal to the center line.

$$\omega_2 \cdot O_2Q / O_4Q = \omega_4$$