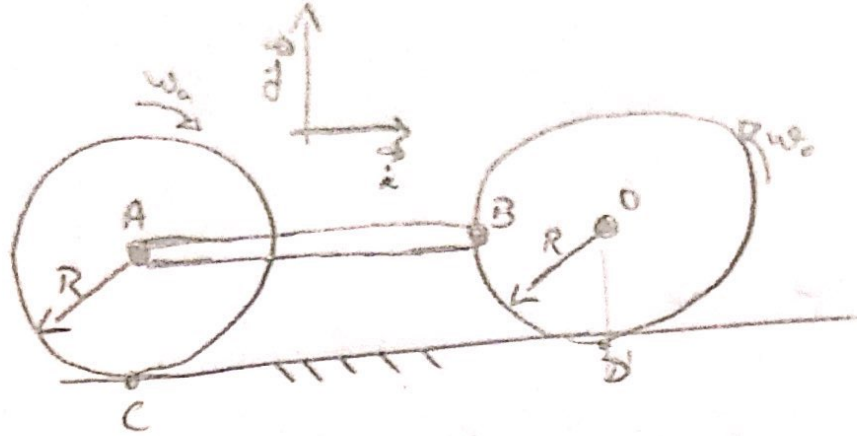


1-



$$a) \vec{V}_A = \vec{V}_C + \omega_a \wedge (A-C)$$

$$(\vec{V}_C = 0)$$

$$\vec{V}_A = -\omega_a \vec{k} \wedge (R \vec{j})$$

$$V_a \vec{i} = \omega_a R \vec{i}$$

$$\omega_a = \frac{V_a}{R} \Rightarrow |\omega_a| = \frac{V_a}{R}$$

$$b) \vec{V}_B = \vec{V}_A + \omega_{ab} \wedge (O-B)$$

$$\vec{V}_B = V_a \vec{i} + (\omega_{ab} l \vec{j})$$

$$\vec{V}_O = \vec{V}_D + \omega_o \wedge (O-D)$$

$$\vec{V}_O = -\omega_o \vec{k} \wedge (R \vec{j})$$

$$V_o = R \omega_o \vec{i}$$

$$\vec{V}_B = \vec{V}_O + \omega_o \wedge (B-O)$$

$$V_a \vec{i} + \omega_{ab} l \vec{j} = R \omega_o \vec{i} + \omega_o R \vec{j}$$

Em i:

$$V_a = R \cdot \omega_o$$

$$\omega_o = \frac{V_a}{R} \Rightarrow |\omega_o| = \frac{V_a}{R}$$

$$c) \vec{V}_B = \vec{V}_O + \omega_{ab} \wedge (B-O)$$

$$\omega_{ab} l = \omega_o R$$

$$\omega_{ab} = \frac{\omega_o R}{l} = \frac{V_a R}{R l}$$

$$|\omega_{ab}| = \frac{V_a}{l}$$