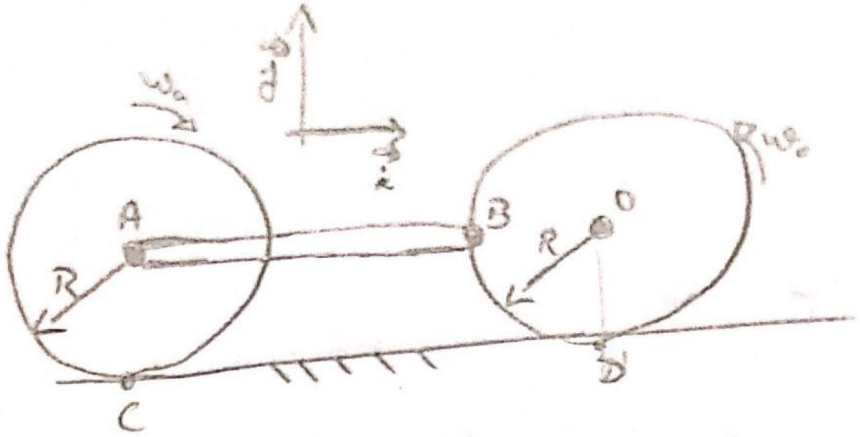
1-



a-) $\vec{V_a} = \vec{V_c} + \omega_a \wedge (A-C)$

$(\vec{V_c} = 0$

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

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

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

b-) $\vec{V_B} = \vec{V_A} + \vec{\omega_{ab}} \wedge (O-B)$

$\vec{V_B} = V_a \vec{i} + (\omega_{ab}\, l\, \vec{j})$

$V_o = V_D + \omega_o \wedge (C-D)$

$V_o = -\omega_o \vec{k} \wedge (C,D)$

$V_o = R\omega_o i$

$V_B = V_o + \omega_o \wedge (B-O)$

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

Em i:

$V_a = R.\omega_o$

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

c-)

Em $\vec{j}$

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

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

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