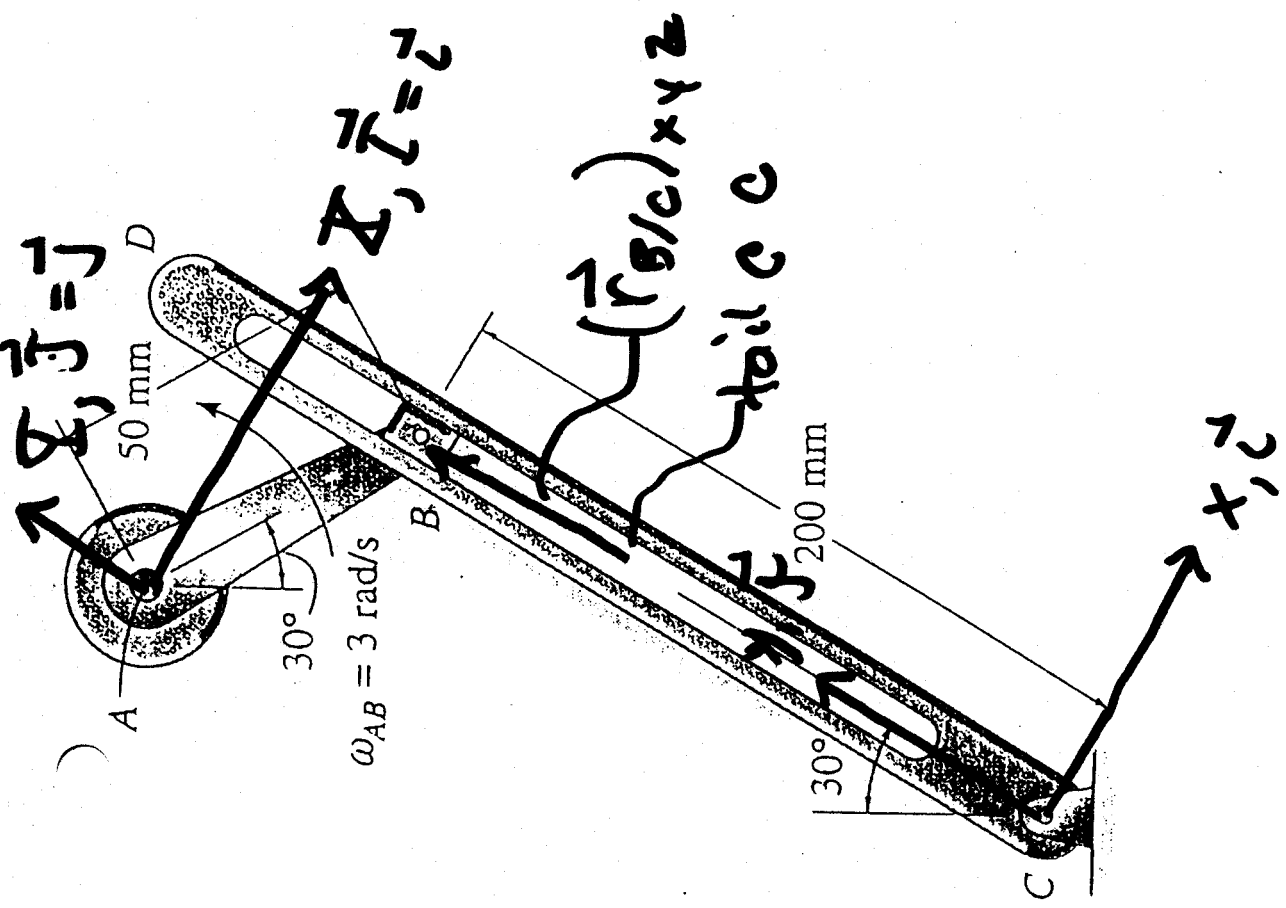
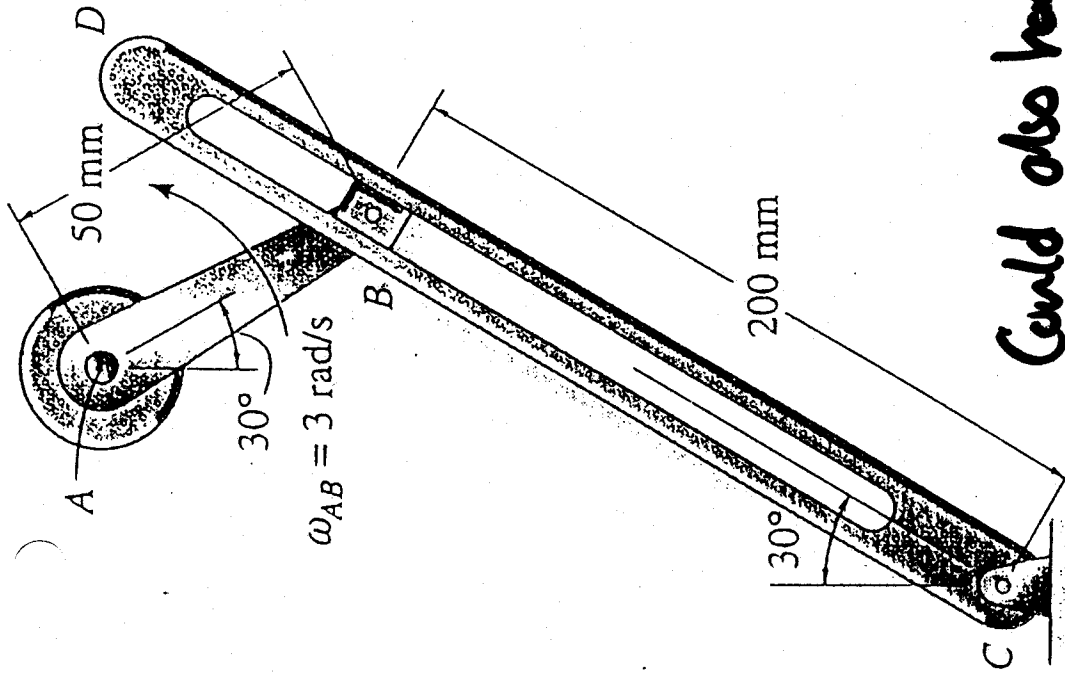


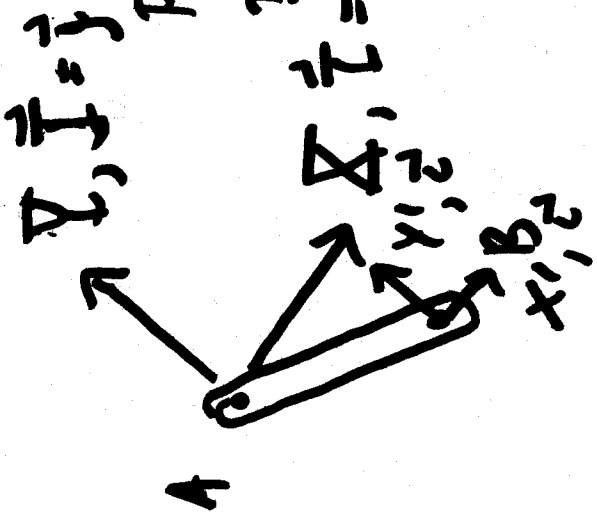
18/1

Link CD





$$\omega_{AB} = 3 \text{ rad/s}$$



Place translating
frame at point B.

$$\vec{X}, \vec{Y} = \vec{x}, \vec{y}$$

18/2

$$\Rightarrow \vec{a}_B = \vec{a}_A + \vec{\alpha}_{AB} \times \vec{r}_{B/A} + \vec{\omega}_{AB} \times (\vec{\omega}_{AB} \times \vec{r}_{B/A})$$

$$= \vec{a}_A + \vec{\alpha}_{AB} \times \vec{r}_{B/A} - \omega_{AB}^2 \vec{r}_{B/A}$$

$$\omega_{AB} = |\vec{\omega}_{AB}|$$

Could also handle using rotating frame assignment.

xy rotates with $\vec{\Omega} = \vec{\omega}_{AB}$; $\dot{\vec{\Omega}} = \dot{\vec{\omega}}_{AB}$

$$\vec{a}_B = \vec{a}_A + \dot{\vec{\Omega}} \times \vec{r}_{B/A} + \vec{\Omega} \times (\vec{\Omega} \times \vec{r}_{B/A}) + 2\vec{\Omega} \times (\vec{v}_{B/A})_{xyz}^0$$

$$+ (\vec{\alpha}_{B/A})_{xyz}$$

always for a
pt on a rigid
body

