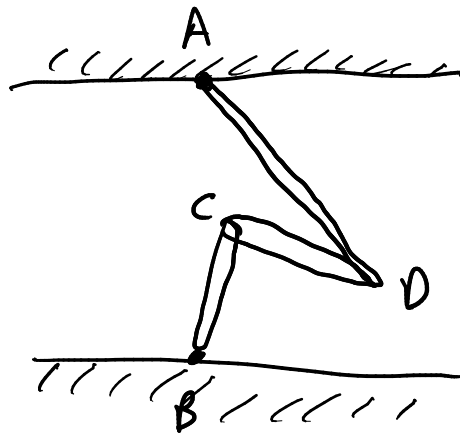
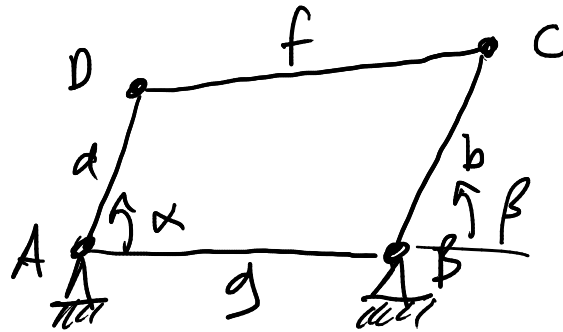


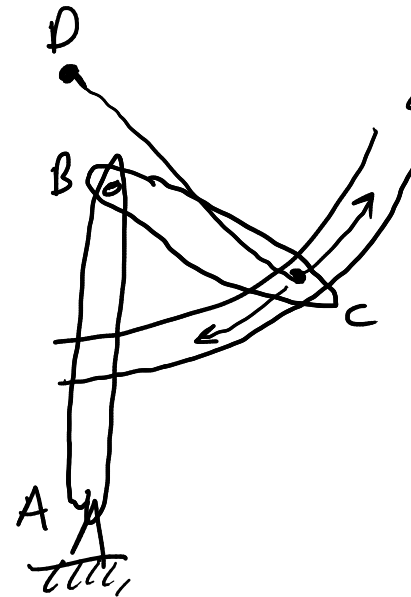
# Four bar linkages



1 DOF.

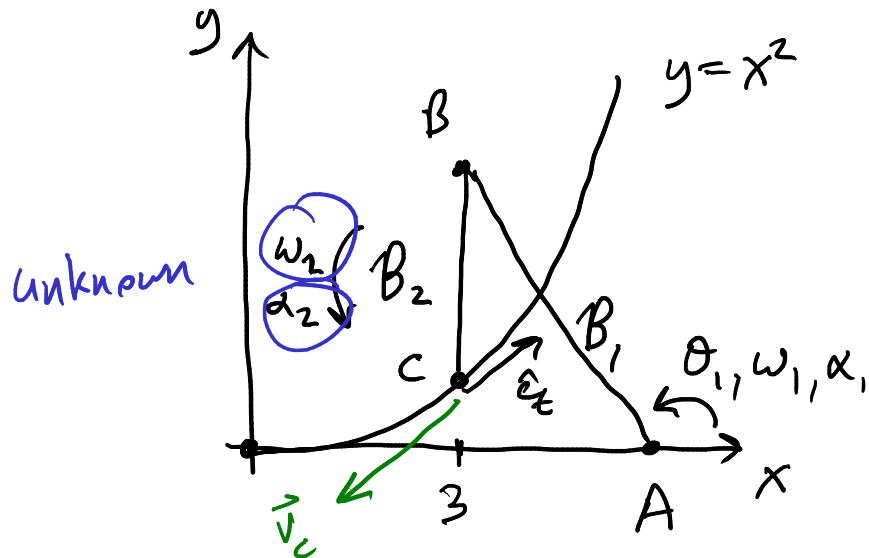
4 points

4 distances fixed



channel  
ensures  
that  
 $CD = \text{const.}$

Ex

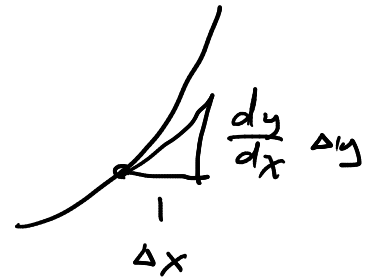


C slides along curve

know A, B, C

know  $\theta, \omega, \alpha$

find  $\vec{v}_c, \vec{a}_c$



know everything about  $B_1 \Rightarrow$  find everything about B

$$\Delta y = \frac{dy}{dx} \Delta x$$

1 vector eqn  $\rightarrow$   $\vec{v}_c = \vec{v}_B + \omega_2 \hat{k} \times \vec{r}_{BC} = v_c \hat{e}_t$   
 = 2 scalar eqns.

unknown

$$\begin{aligned} \hat{e}_t &= \hat{i} + \frac{dy}{dx} \hat{j} \\ &= \Delta x \hat{i} + \Delta y \hat{j} \\ &= \Delta x \hat{i} + \frac{dy}{dx} \Delta x \hat{j} \end{aligned}$$

$$a_t \hat{e}_t + a_n \hat{e}_n = \vec{a}_c = \vec{a}_B + \alpha_2 \hat{k} \times \vec{r}_{BC} + \omega_2 \hat{k} \times (\omega_2 \hat{k} \times \vec{r}_{BC})$$

unknown  $\uparrow$   
 know

know track shape, know  $v \Rightarrow a_n = \frac{v^2}{\rho}$   
 $\# \text{ rkt-e2} \rightarrow \kappa \Rightarrow \rho$