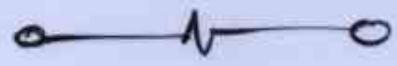


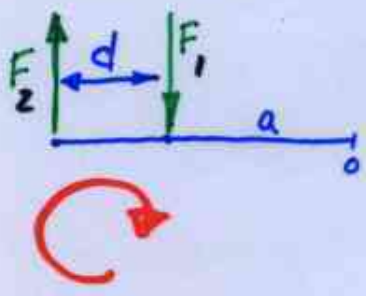
PROOF: $M_o = \vec{r} \times \vec{F}$; $\vec{F} = \vec{P} + \vec{Q}$ COMPONENTS
 $\Rightarrow M_o = \vec{r} \times (\vec{P} + \vec{Q})$

CROSS PRODUCT IS DISTRIBUTIVE SO...

$M_o = \vec{r} \times \vec{P} + \vec{r} \times \vec{Q}$ i.e. SUM OF MOMENTS.



COUPLE : CONSIDER 2 EQUAL AND OPPOSITE FORCES. NETT FORCE = $\vec{0}$.



WHAT IS MOMENT ?

$$M_o = +F_1 \cdot a - F_2(a+d)$$

$$= -Fd$$

i.e. "a" DOES NOT MATTER.

MOMENT OF COUPLE SAME ABOUT ALL POINTS

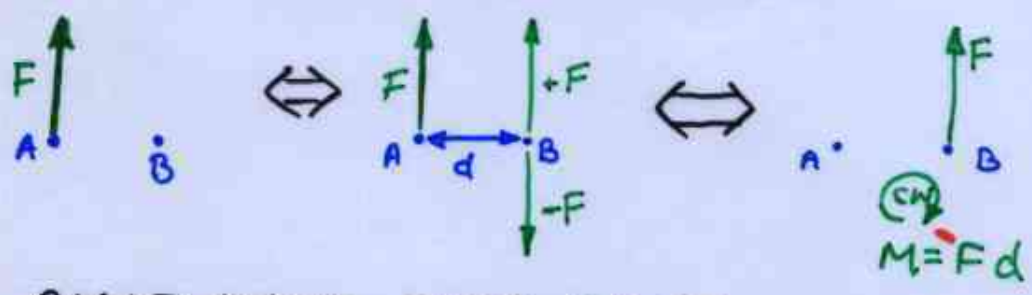


then $\vec{M} = +Fd$ (RIGHT HAND RULE, AGAIN)



FORCE - Couple SYSTEMS:

YOU CAN REPLACE A FORCE BY AN EQUAL PARALLEL FORCE PLUS A MOMENT:



RIGHT HAND RULE GIVES DIRECTION OF COUPLE (clockwise/NEGATIVE HERE)