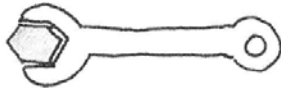


NOTES: Moments

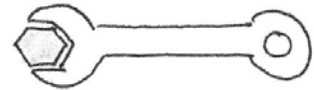
HOW TO USE A WRENCH:



(a)



(b)

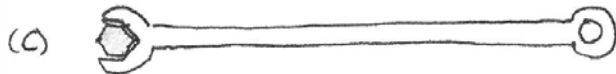
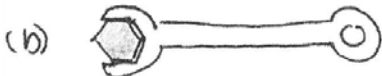


(c)

ONLY THE PART OF THE FORCE THAT IS _____ TO
THE WRENCH IS USEFUL

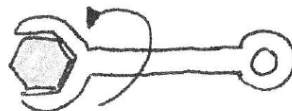


NOW, PICK YOUR FAVORITE WRENCH:



AND SO THE USEFUL
QUANTITY IS

WHICH WAY TIGHTENS BOLT? WHICH WAY LOOSENS IT?



_____ & _____ ARE IMPORTANT.

SOUNDS LIKE A _____.

NOTES: Moments

 Formal Definition



- $|| =$
- DIRECTION IS _____ TO \vec{r} & \vec{F} USING _____.



OR USE

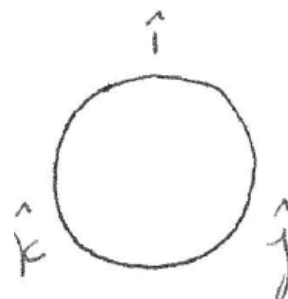
$$= \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ \dots & \dots & \dots \\ \dots & \dots & \dots \end{vmatrix}$$

MOST USEFUL IN _____.

PROPERTIES:

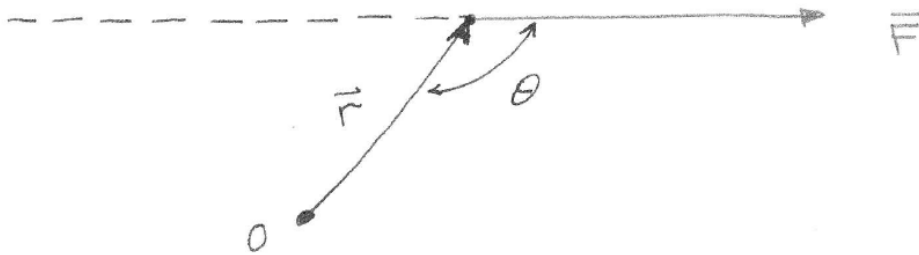
- $\vec{A} \times \vec{B} = \vec{B} \times \vec{A}$
- $\vec{A} \times \vec{B} = \vec{B} \times \vec{A}$
- IF $\vec{B} = \vec{B}_1 + \vec{B}_2$
 $\vec{A} \times \vec{B} = \vec{A} \times (\vec{B}_1 + \vec{B}_2) =$

$\hat{i} \times \hat{i} =$	$\hat{i} \times \hat{j} =$	$\hat{i} \times \hat{k} =$
$\hat{j} \times \hat{i} =$	$\hat{j} \times \hat{j} =$	$\hat{j} \times \hat{k} =$
$\hat{k} \times \hat{i} =$	$\hat{k} \times \hat{j} =$	$\hat{k} \times \hat{k} =$



NOTES: Moments

CONSIDER THE MOMENT ABOUT 0 DUE TO FORCE \vec{F} .



WHAT IS $|\vec{M}_0| = ?$

NOW FIND $|\vec{r}_2 \times \vec{F}|$.

$$|\vec{r}| \sin \theta = |\vec{r}_2| \sin \theta_2 = \underline{\hspace{2cm}}$$

COOL THING NUMBER 1:

COOL THING NUMBER 2: INFORMAL DEFINITION of
A MOMENT.