

$$(c) : \vec{F} = (2\hat{i} + \hat{j} + 2\hat{k}) \text{ N}, \vec{r} = (\hat{i} + \hat{j} + \hat{k}) \text{ m},$$

$$\vec{\tau} = \vec{r} \times \vec{F} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ 1 & 1 & 1 \\ 2 & 1 & 2 \end{vmatrix}$$

$$= \hat{i}(2 - 1) - \hat{j}(2 - 2) + \hat{k}(1 - 2) = \hat{i} - \hat{k}$$