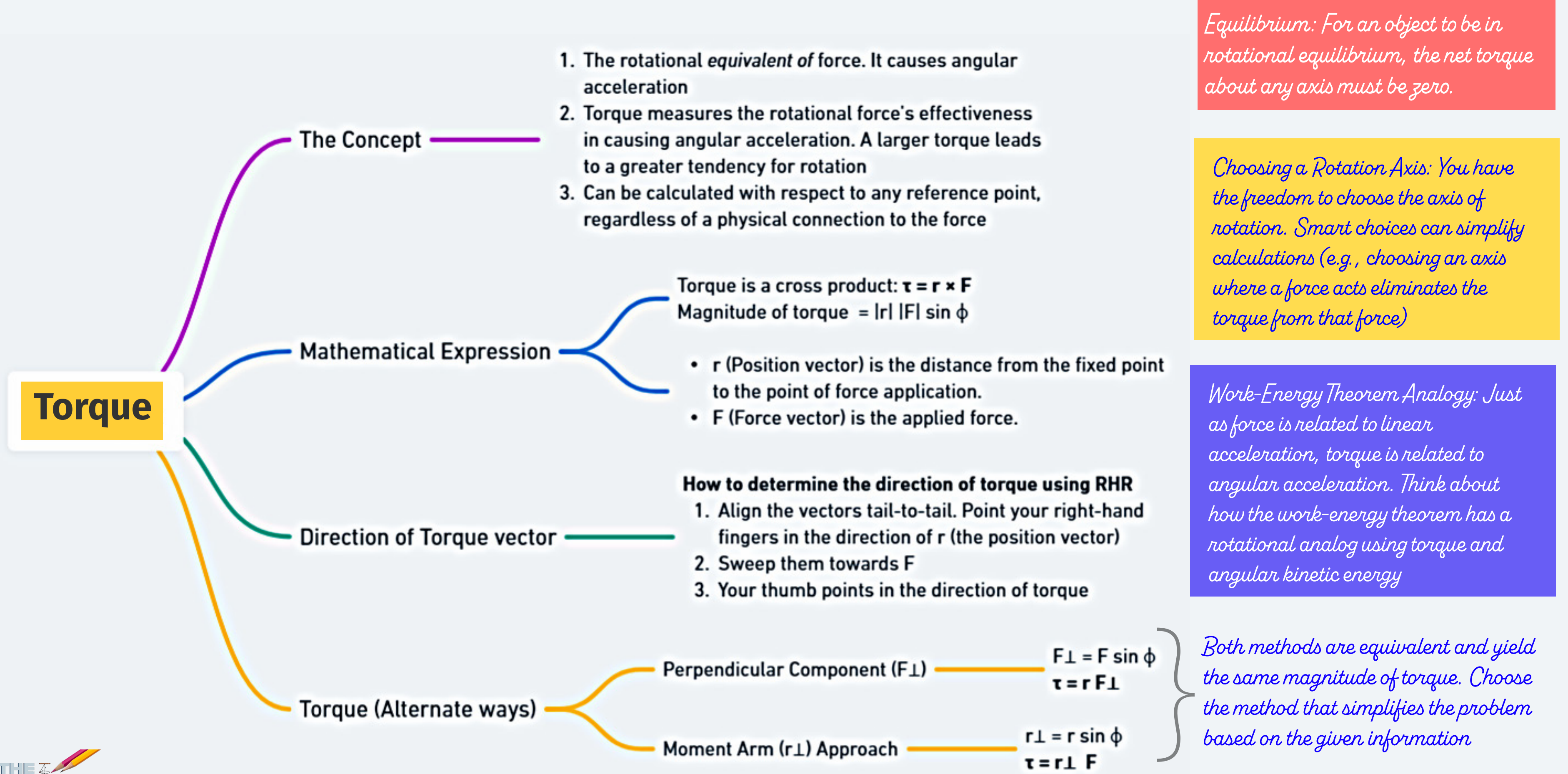
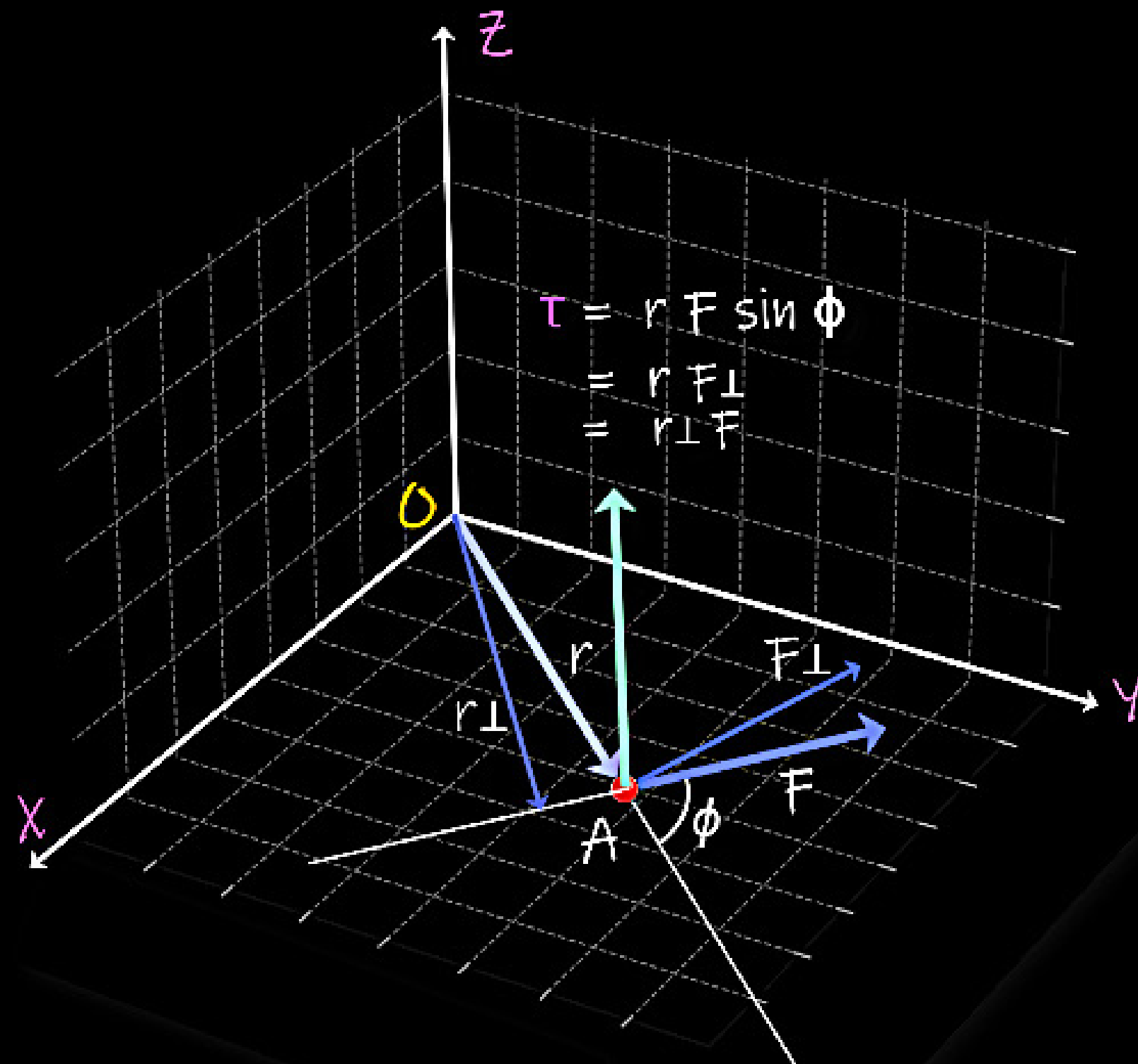


3. Mind Map: Understanding Torque



3. Mind Map: Understanding Torque



$$\tau = r \times F$$

$$\tau = r F \sin \phi$$

$$\tau = F r \sin \phi$$

1. Perpendicular Force Component Way

$$F_{\perp} = F \sin \phi$$

$$\tau = r F_{\perp}$$

2. Moment Arm Way

$$r_{\perp} = r \sin \phi$$

$$\tau = r_{\perp} F$$