Angular Kinetics

Torque: tendency of a force to cause rotation.

$\Rightarrow$ $T = F d_\perp$

F: Magnitude of Force (N)

$d_\perp$: Moment arm (m)

units: Nm

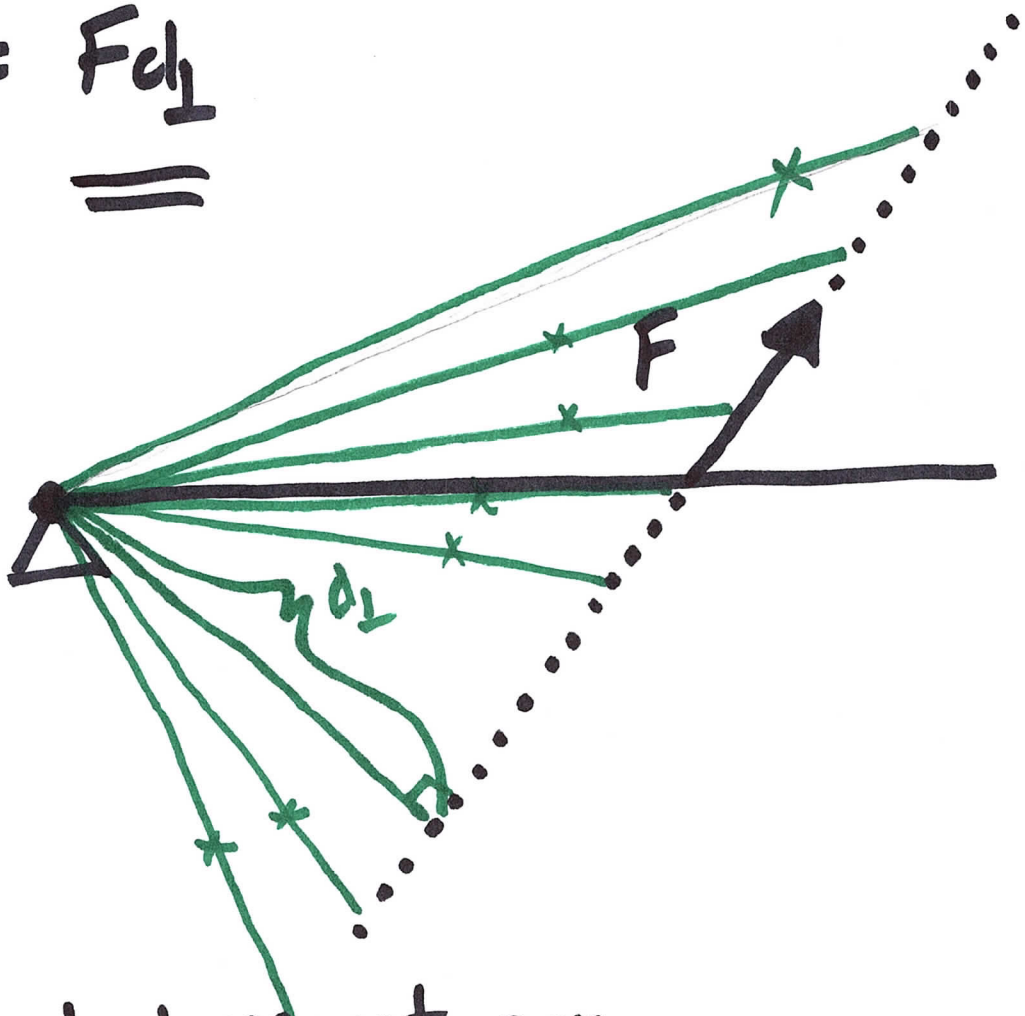
Vector: has magnitude & direction

Reference frame: CCW+

+ Torque: Tends to cause CCW rotation.

- Torque: Tends to cause CW rotation

$T = F d_\perp$



$d_\perp$: moment arm

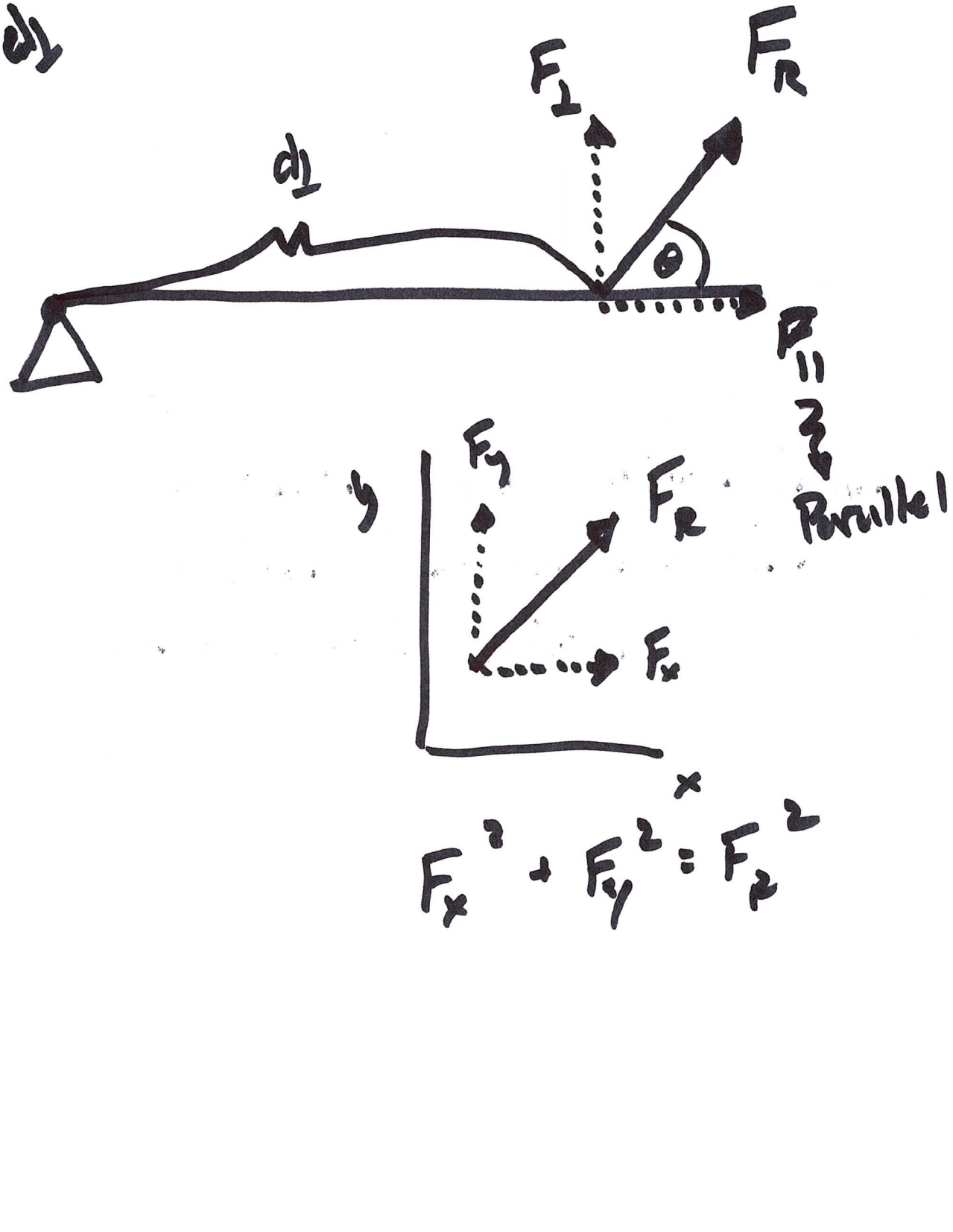
shortest distance between the Line of Application of the force and the axis of rotation.

OR

The perpendicular distance between the Line of Application of force and axis of rotation.

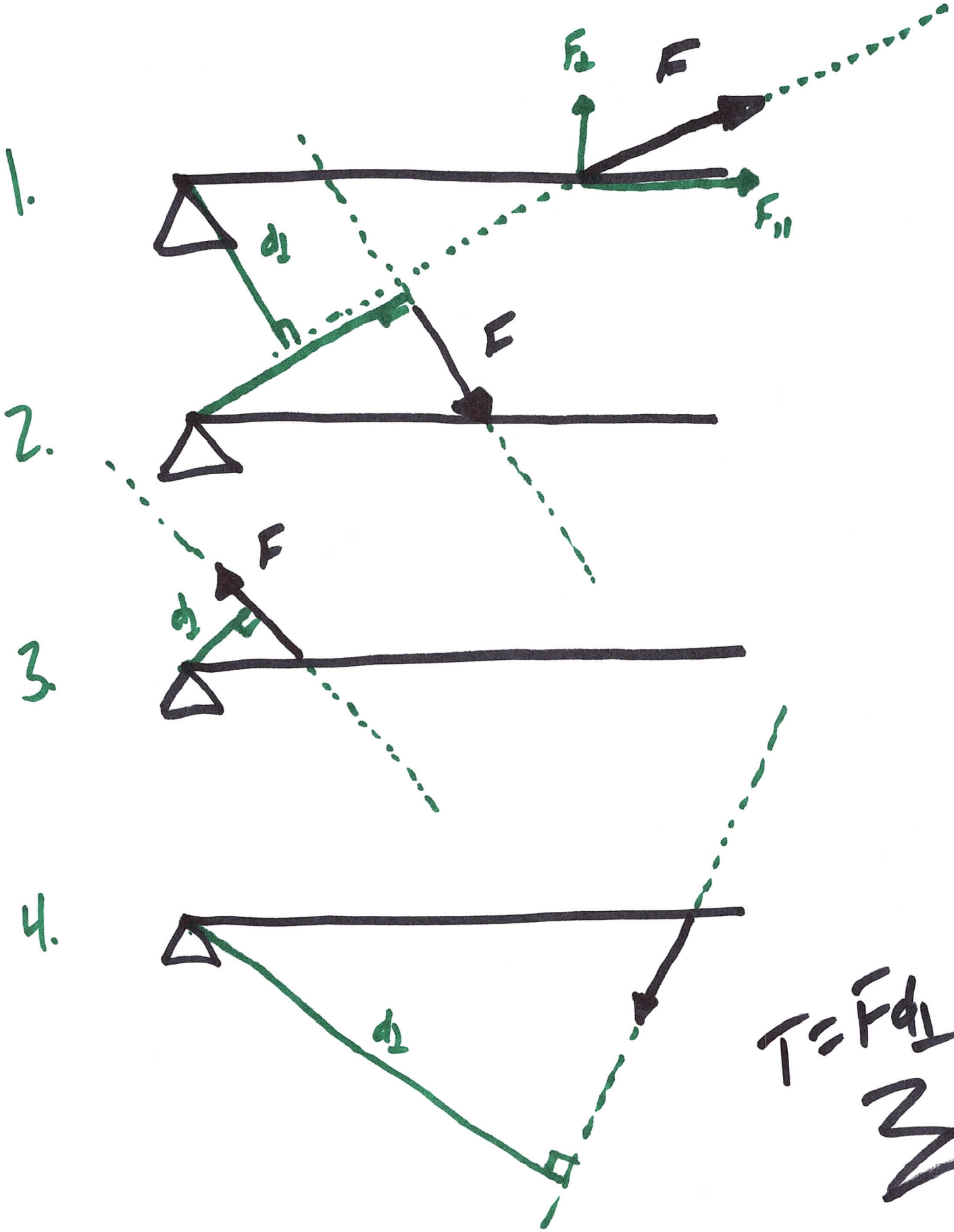
If you are in Physics Class...

$T = F d_1$



$$F_x^2 + F_y^2 = F_R^2$$

Practice ...



$T = F d_\perp$

N