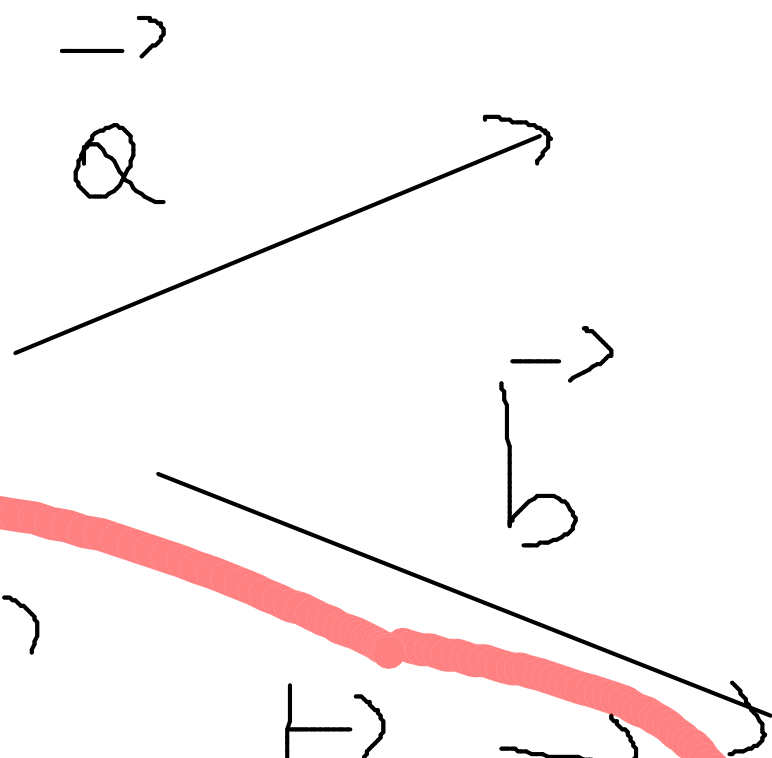
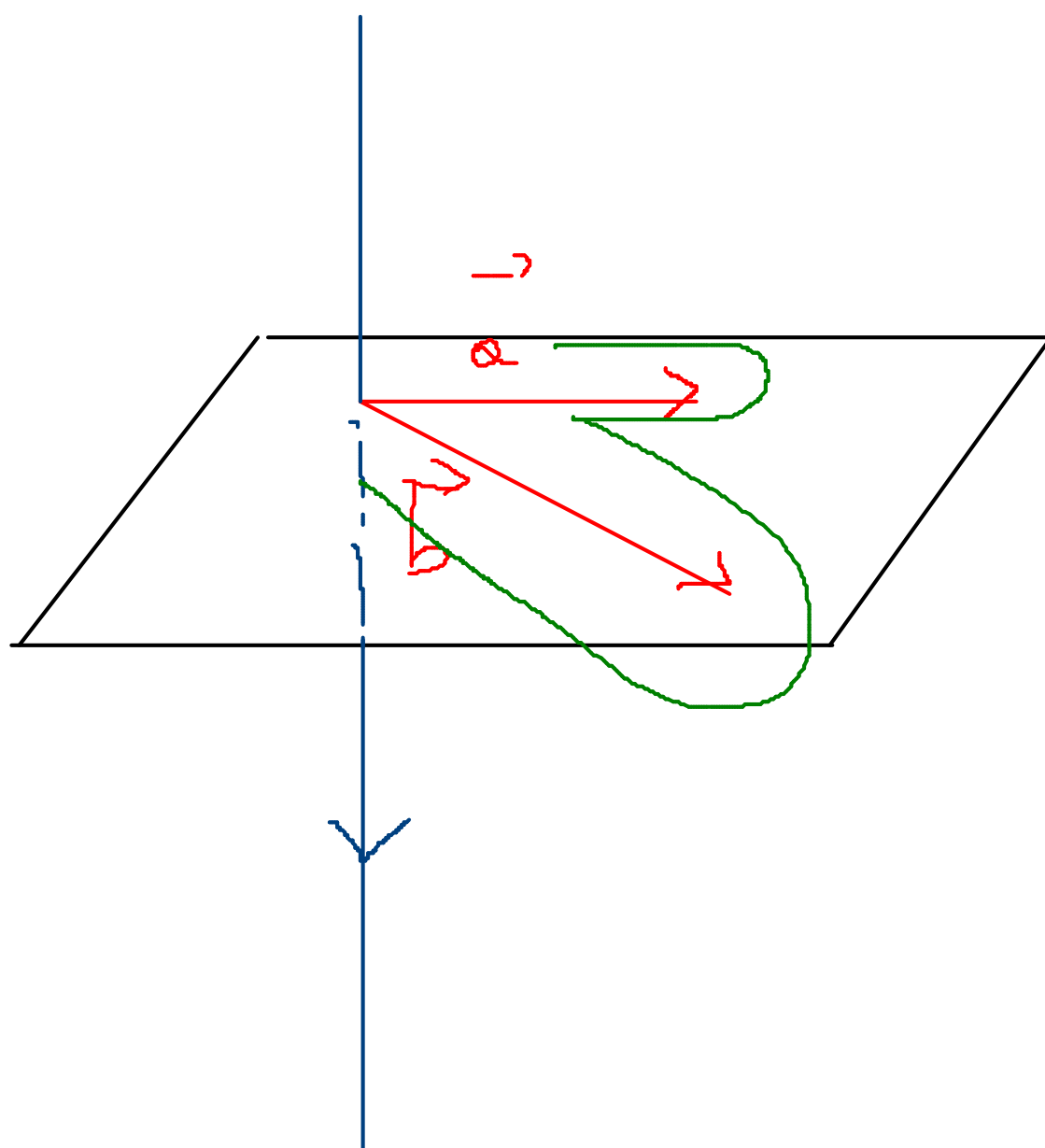
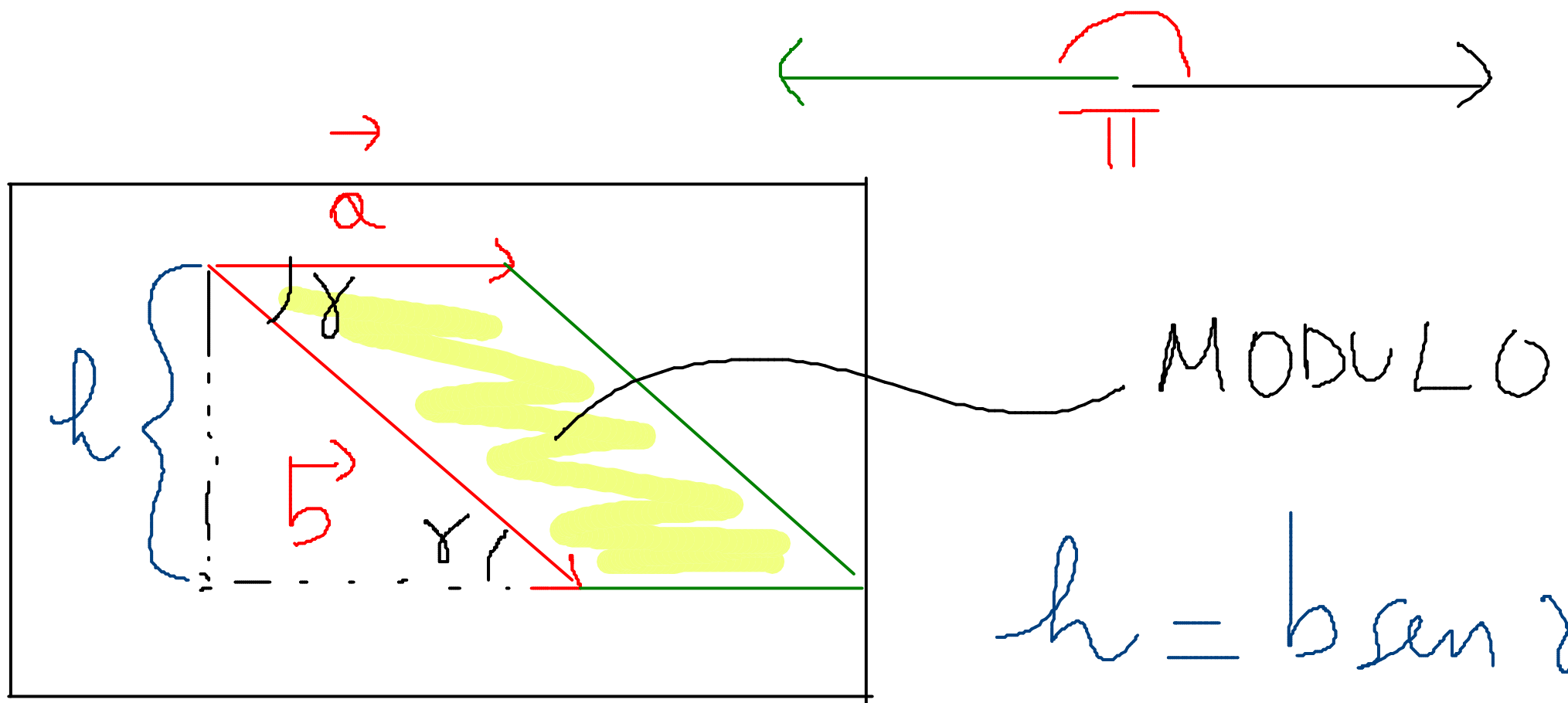


$$\vec{a} \times \vec{b} = \vec{c}$$



$$\vec{a} \times \vec{b} = -\vec{b} \times \vec{a}$$





$$h = b \sin \gamma$$

$$|\vec{c}| = a \cdot h = a b \sin \gamma = a \cdot b \sin \frac{\pi}{2} = a \cdot b$$

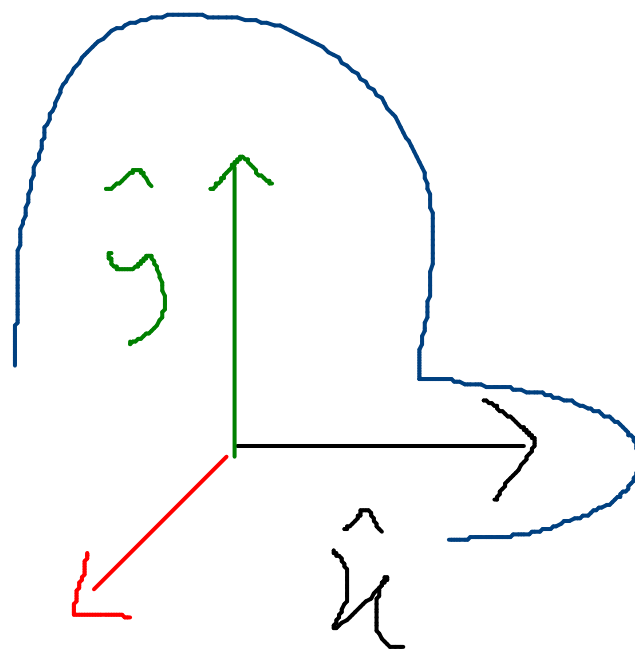
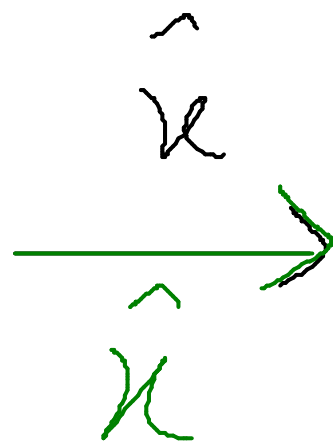
$$\gamma = \frac{\pi}{2}$$

$$\hat{x} \times \hat{x} = 0$$

$$\hat{y} \times \hat{y} = 0$$

$$\hat{z} \times \hat{z} = 0$$

$$\hat{x} \times \hat{y} = \hat{z}$$



$$\hat{y} \times \hat{z} = \hat{x}$$

$$\hat{z} \times \hat{x} = \hat{y}$$

$$\hat{y} \times \hat{x} = -\hat{z}$$

$$\hat{z} \times \hat{y} = -\hat{x}$$

$$\hat{x} \times \hat{z} = -\hat{y}$$

$$\vec{a} = (a_x \hat{x} + a_y \hat{y} + a_z \hat{z})$$

$$\vec{b} = (b_x \hat{x} + b_y \hat{y} + b_z \hat{z})$$

$$\vec{a} \times \vec{b} = (a_x \hat{x} + a_y \hat{y} + a_z \hat{z}) \times (b_x \hat{x} + b_y \hat{y} + b_z \hat{z})$$

$$= \underbrace{(a_y b_z - a_z b_y)}_{c_x} \hat{x} + \underbrace{(a_z b_x - a_x b_z)}_{c_y} \hat{y} + \underbrace{(a_x b_y - a_y b_x)}_{c_z} \hat{z}$$

$$\vec{a} = (2, 0, 0)$$

$$\vec{b} = (3, 3, 0)$$

$$\vec{a} \times \vec{b} = ?$$