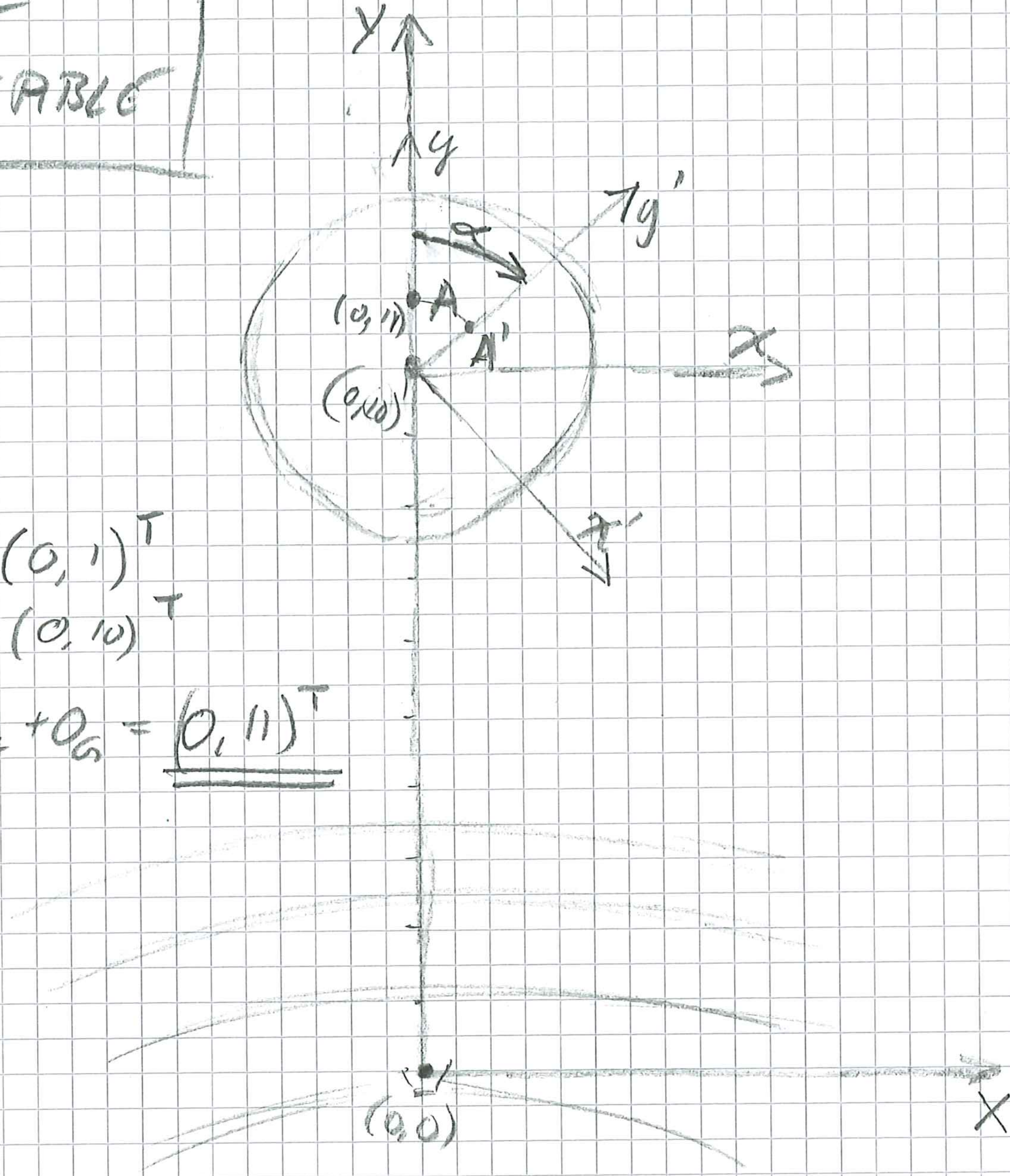
STAGE TURNTABLE



② $A_L = (0,1)^T$

$O_G = (0,10)^T$

$A_G = A_L + O_G = \underline{\underline{(0,11)^T}}$

③ $R_\theta = \begin{bmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{bmatrix}$

for counterclockwise rotation by θ

We have $\theta = -\alpha$

$$\underline{\underline{R_{-\alpha} = \begin{bmatrix} \cos\alpha & \sin\alpha \\ -\sin\alpha & \cos\alpha \end{bmatrix}}}$$

STAGE TURNTABLE cont'd

(4) $$A'_L = R_{-\alpha} \cdot A_L = \begin{bmatrix} \sin\alpha \\ \cos\alpha \end{bmatrix}$$

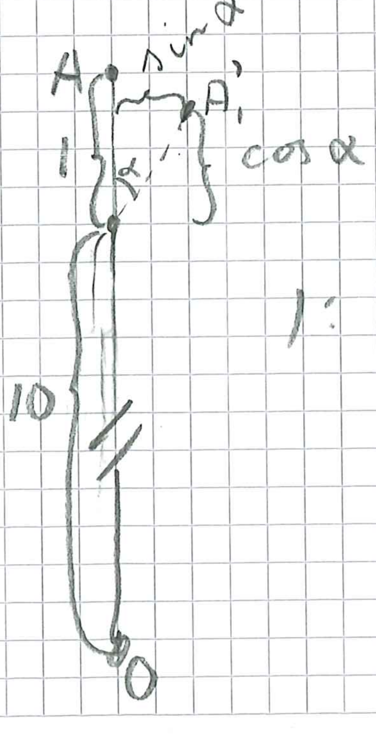
$$A'_G = A'_L + O_G = \begin{bmatrix} \sin\alpha \\ 10 + \cos\alpha \end{bmatrix}$$

(5) $$B'_L = R_{-\alpha} \cdot B_L = \begin{bmatrix} x\cos\alpha + y\sin\alpha \\ -x\sin\alpha + y\cos\alpha \end{bmatrix}$$

$$B'_G = B'_L + O_G = \begin{bmatrix} x\cos\alpha + y\sin\alpha \\ 10 - x\sin\alpha + y\cos\alpha \end{bmatrix}$$

(6) Above, we used the same calculation as in (2), simply applying the translation of the origin

We can verify geometrically



$$1: A' = \begin{bmatrix} \sin\alpha \\ 10 + \cos\alpha \end{bmatrix}$$