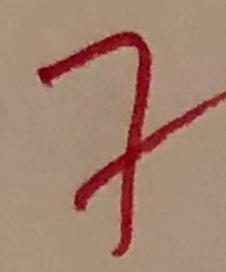
5. (a) [2 pts] Write down the 2x2 matrix for rotation by an angle θ .



(b) [2 pts] Use the determinant to show that this matrix is invertible.

$$det(A) = cos^2\theta + sin^2\theta = 1$$

 $det(A) \neq 0$. The matrix is invertible

(c) [3 pts] Explain geometrically what the inverse matrix should do, and write the inverse matrix down.

$$A = \begin{pmatrix} q & b \\ c & d \end{pmatrix} \rightarrow \bar{A}^{1} = \frac{1}{de+(A)} \begin{pmatrix} d & -b \\ -c & q \end{pmatrix}$$