rotating a circle: rotate center and reconstruct, radius stays the same

If rotating something about the origin, don't need to move it

- an inverse of a reflection matrix is itself
- composition of a reflection w/ itself doesn't move a point

with 2 reflections, put the one that occurs first closest to the $\begin{bmatrix} x \\ y \end{bmatrix}$

$$\begin{bmatrix} x' \\ y' \end{bmatrix} = \begin{bmatrix} \text{2nd rotation} \end{bmatrix} \begin{bmatrix} \text{1st rotation} \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix}$$

Can multiply together to form the whole rotation?

If a parabola is rotated and is not completely vertical or horizontal, it will have an equation w/ x^2 and y^2

a relation is 1:1 if every preimage pt goes to a DIFF image pt

If det=0, no inverse, if no inverse can't undo the transformation and not 1:1

inverse means 1:1 which means reversible

- If reflecting over a line, the line is invariant
- invariant pt is pt you rotate about

If ask for θ in rotation matrix, do $\cos^{-1}$ of 1st term, top left