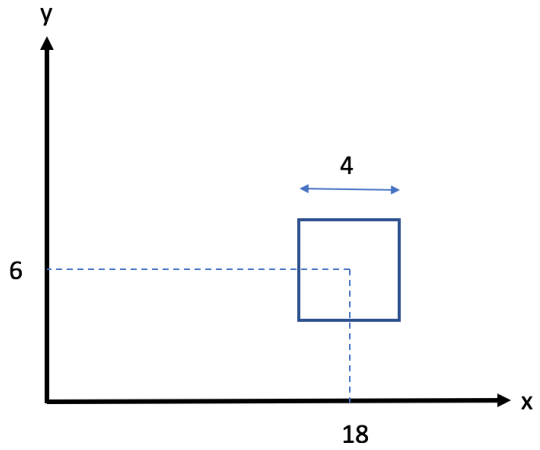
CMPE 360
Hands-On Activity 1

Name(s):

1. Given the square in the figure, derive the explicit transformation matrix for a **clockwise rotation around its center by 45 degrees**.



2. Describe in words what this 2D transform matrix does:

$$\begin{bmatrix} 0 & -1 & 1 \\ 1 & 0 & 1 \\ 0 & 0 & 1 \end{bmatrix}$$

3. Write down the 4 × 4 3D matrix to rotate by an angle 30 degrees about the *y*-axis, and then by 45 degrees about the *x*-axis.

4. Convert the point (100, 200) in cartesian coordinates to polar coordinates.

5. Find the transformation matrix that takes the object on the left, and transforms it to the object on the right.