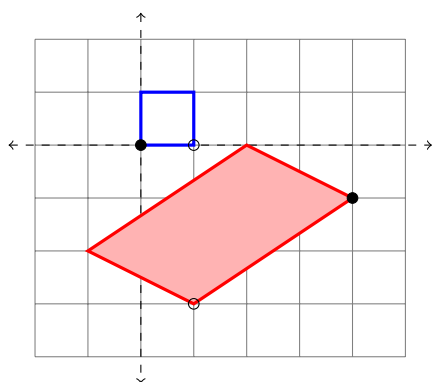


For problem #1, write the transformation which takes the unit square (blue) to the transformed square (red). Use the form

$$T \begin{pmatrix} x \\ y \end{pmatrix} = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \begin{pmatrix} x \\ y \end{pmatrix} + \begin{pmatrix} e \\ f \end{pmatrix}.$$

For #2, sketch a diagram of the unit square (blue) and the parallelogram it transforms into (red, possibly shaded if there is a flip). Also, check your work algebraically (using matrix multiplication) like we did in class by evaluating  $T \begin{pmatrix} 1 \\ 1 \end{pmatrix}$  and seeing that it is in the right place on your sketch. If you don't have blue/red pens/pencils, use a **solid line** for blue and a **dashed line** for red. Be sure you indicate filled and open circles appropriately.



- 1.
- 2.

$$T \begin{pmatrix} x \\ y \end{pmatrix} = \begin{bmatrix} -2 & 3 \\ -3 & -1 \end{bmatrix} \begin{pmatrix} x \\ y \end{pmatrix} + \begin{pmatrix} 1 \\ 4 \end{pmatrix}.$$

