WORKSHEET 9/23/21
MATH 2331, FALL 2021

(1) By thinking geometrically, decide which of the following transformations are invertible.
   (a) Scaling
   (b) Projection
   (c) Reflection
   (d) Rotation
   (e) Shear
   (f) Rotation and scaling

(2) By thinking geometrically, identify the inverse of each invertible transformation above.

(3) Based on your answers to the previous problem, guess the inverse of each matrix below.

   (a) $\begin{bmatrix} 5 & 0 \\ 0 & 5 \end{bmatrix}$

   (b) $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$

   (c) $\begin{bmatrix} \frac{\sqrt{3}}{2} & -\frac{1}{2} \\ \frac{1}{2} & \frac{\sqrt{3}}{2} \end{bmatrix}$

   (d) $\begin{bmatrix} 1 & 0 \\ \frac{1}{3} & 1 \end{bmatrix}$

   (e) $\begin{bmatrix} 1 & -2 \\ 2 & 1 \end{bmatrix}$

(4) How could you check your guesses above?