Lecture 16: Coordinates

1 Find pairs of matrices which are similar.

$$\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$$

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

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

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

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

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

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

$$\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$$

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

2 Circle all the matrices which are similar to the matrix $\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix}$:

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

$$C = \begin{bmatrix} 2 & 0 \\ 0 & 0 \end{bmatrix}$$

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

$$D = \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$$

$$E = \begin{bmatrix} 1 & -2 \\ 1 & -2 \end{bmatrix}$$

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true	false	
		A is similar to B
		A is similar to C
		A is similar to D

true	false	
		B is similar to C
		B is similar to D
		C is similar to D

$$A = \begin{bmatrix} 0 & 3 \\ 1 & 2 \end{bmatrix} \qquad B = \begin{bmatrix} 3 & 0 \\ 1 & 2 \end{bmatrix} \qquad C = \begin{bmatrix} 2 & 1 \\ 0 & 3 \end{bmatrix} \qquad D = \begin{bmatrix} 1 & 4 \\ 1 & 1 \end{bmatrix}$$