

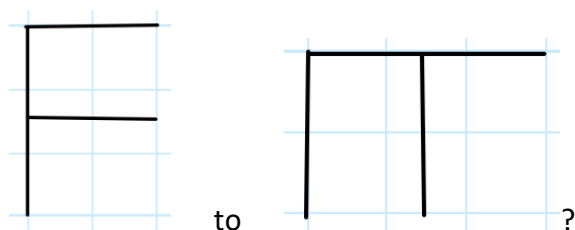
**Pre-test questions****Problem 1**

What matrix defines the reflection in the line  $y = -x$ ?

A)  $\begin{pmatrix} 0 & -1 \\ 1 & 0 \end{pmatrix}$  B)  $\begin{pmatrix} 0 & -1 \\ -1 & 0 \end{pmatrix}$  C)  $\begin{pmatrix} -1 & 0 \\ 0 & -1 \end{pmatrix}$  D)  $\begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$

**Problem 2**

Which of the following matrices describes the transformation of the image



A)  $\begin{pmatrix} 0 & -1 \\ 1 & 0 \end{pmatrix}$  B)  $\begin{pmatrix} 0 & -1 \\ -1 & 0 \end{pmatrix}$  C)  $\begin{pmatrix} -1 & 0 \\ 0 & -1 \end{pmatrix}$  D)  $\begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$

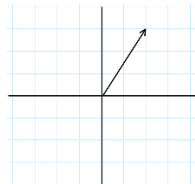
**Problem 3**

What is the image of the vector  $\begin{pmatrix} 2 \\ 3 \end{pmatrix}$  under the linear transformation with matrix  $\begin{pmatrix} -2 & 0 \\ 0 & 1 \end{pmatrix}$ ?

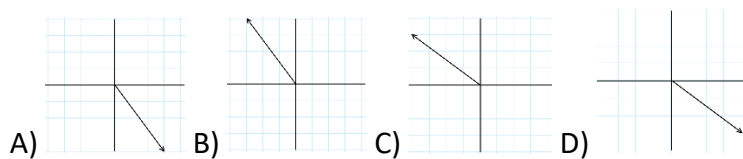
A)  $\begin{pmatrix} 3 \\ -4 \end{pmatrix}$  B)  $\begin{pmatrix} -3 \\ 4 \end{pmatrix}$  C)  $\begin{pmatrix} -4 \\ 3 \end{pmatrix}$  D)  $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$

**Problem 4**

What is the image of the vector



under the linear transformation with matrix  $\begin{pmatrix} -2 & 0 \\ 0 & 1 \end{pmatrix}$ ?



### Post-test questions

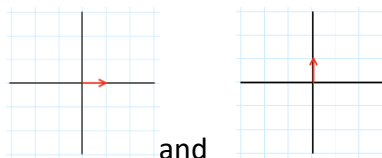
#### Problem 5

Which of the following matrices maps the vectors  $\begin{pmatrix} 1 \\ 0 \end{pmatrix}$  and  $\begin{pmatrix} 0 \\ 1 \end{pmatrix}$  to the vectors  $\begin{pmatrix} 2 \\ 3 \end{pmatrix}$  and  $\begin{pmatrix} 4 \\ 5 \end{pmatrix}$  respectively?

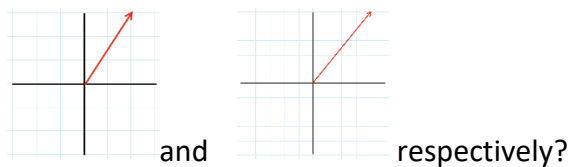
A)  $\begin{pmatrix} 4 & 2 \\ 5 & 3 \end{pmatrix}$  B)  $\begin{pmatrix} 4 & 5 \\ 2 & 3 \end{pmatrix}$  C)  $\begin{pmatrix} 2 & 4 \\ 3 & 5 \end{pmatrix}$  D)  $\begin{pmatrix} 2 & 3 \\ 4 & 5 \end{pmatrix}$

#### Problem 6

Which of the following matrices maps the vectors



to the vectors



A)  $\begin{pmatrix} 4 & 2 \\ 5 & 3 \end{pmatrix}$  B)  $\begin{pmatrix} 4 & 5 \\ 2 & 3 \end{pmatrix}$  C)  $\begin{pmatrix} 2 & 4 \\ 3 & 5 \end{pmatrix}$  D)  $\begin{pmatrix} 2 & 3 \\ 4 & 5 \end{pmatrix}$