

4.13A Matrices as Functions

AP Precalculus

Name: _____

CA #2

Directions: Given the linear transformation, find the associated matrix with that transformation.

1) $\langle x, y \rangle$ to $\langle x + 3y, 5x + 2y \rangle$

2) $\langle x, y \rangle$ to $\langle -2x + y, x - 4y \rangle$

Directions: Find the linear transformation given the associated matrix.

3) $\begin{bmatrix} 3 & -2 \\ 2 & 1 \end{bmatrix}$

4) $\begin{bmatrix} 3 & 0 \\ 0 & -3 \end{bmatrix}$

Directions: Considering the given transformation, what is the image of the given vector under the transformation.

4) $\vec{u} = \langle -3, 5 \rangle$ rotated $\frac{\pi}{2}$ radians counterclockwise.

5) $\langle x, y \rangle$ to $\langle -2x, -2y \rangle$ and $\vec{v} = \langle -5, 6 \rangle$

ANSWERS

1) $\begin{bmatrix} 1 & 3 \\ 5 & 2 \end{bmatrix}$ 2) $\begin{bmatrix} -2 & 1 \\ 1 & -4 \end{bmatrix}$ 3) $\langle x, y \rangle$ to $\langle 3x - 2y, 2x + y \rangle$. 4) $\langle x, y \rangle$ to $\langle 3x, -3y \rangle$. 5) $\langle -5, -3 \rangle$. 6) $\langle 10, -12 \rangle$