Math 220 Assignment

November 14, 2001

Due Friday, November 16

1. Let $e_1 = (1, 0)$ and $e_2 = (0, 1)$ be the standard basis of the Cartesian plane. Find the matrix relative to this basis of the rotation about the origin through the angle θ.

2. Find the matrix with respect to the basis **e** in the previous exercise of the reflection in the line through the origin that has angle of elevation $\theta/2$ (counterclockwise from the positive direction along the first coordinate axis).

3. When **g** is the basis of the Cartesian plane with $g_1 = (2, 2)$ and $g_2 = (-2, 2)$, what is the matrix of the rotation about the origin through the angle $\pi/2$ relative to **g**?

4. When **h** is the basis of the Cartesian plane with $h_1 = (a, b)$ and $h_2 = (c, d)$, what is the matrix of the rotation about the origin through the angle $\pi/2$ relative to **h**? (Assume that $ad - bc \neq 0$.)

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`http://math.albany.edu:8000/math/pers/hammond/course/mat220/assgt/la011114.html`