1. Hidden matrix

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Problem Set A due Sep 15, 2021 20:30 IST

Practice

Matrix 1

1/1 point (graded)

Suppose variables y_1, y_2 depend on x_1, x_2 as:

$$y_1 = -x_1 - 3x_2 \quad (5.160)$$
$$y_2 = -7x_1 \quad (5.161)$$

Find the matrix M such that $\begin{pmatrix} y_1 \\ y_2 \end{pmatrix} = M \begin{pmatrix} x_1 \\ x_2 \end{pmatrix}$.

(Enter a matrix using notation such as `[[a,b],[c,d]]`.)

$M =$ [[-1,-3],[-7,0]] ✔ **Answer:** [[-1, -3],[-7, 0]]

Solution:

We recognize y_1 and y_2 to be "a number times x_1" plus “a number times x_2". These numbers make up the matrix.

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Answers are displayed within the problem

Matrix 2

1/1 point (graded)

Suppose variables y_1, y_2, y_3 depend on x_1, x_2, x_3 as:

$$y_1 = -2x_1 \quad (5.162)$$
$$y_2 = -7x_1 - 5x_2 - 7x_3 \quad (5.163)$$
$$y_3 = -7x_1 + 6x_2 - 3x_3 \quad (5.164)$$

Find the matrix M such that $\begin{pmatrix} y_1 \\ y_2 \\ y_3 \end{pmatrix} = M \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix}$.

(Enter a matrix using notation such as `[[a,b],[c,d]]`.)

$M =$ [[-2,0,0],[-7,-5,-7],[-7,6,-3]] ✔

Submit You have used 1 of 3 attempts

✔ Correct (1/1 point)

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