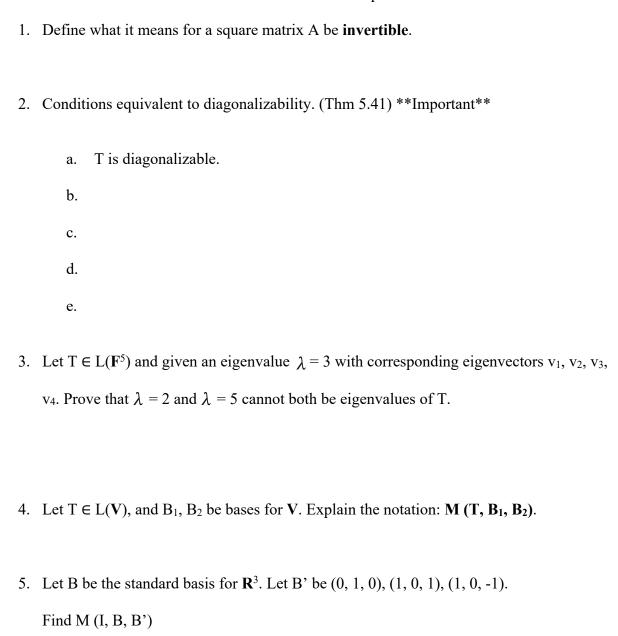
MATH 306 Workshop



6. Let T be the linear transformation from \mathbb{R}^3 to \mathbb{R}^3 given by

$$T(x, y, z) = (3x, 6z - x, -x + 3z)$$

Let B be the basis $\{(1, 0, 1), (1, 0, -1), (0, 1, 0)\}$. Find M (T, B, B).

7. Let T be the linear transformation from \mathbb{R}^3 to \mathbb{R}^3 given by

$$T(x, y, z) = (3x, 6z - x, -x + 3z)$$

Let B be the standard basis. Let B' be the basis $\{(0,0,1),(0,1,0),(1,0,0)\}$.

Find M (T, B, B').

8. Suppose A and B are square matrices of the same size and AB = I. Prove that BA = I.

2 March 2020 5C&10A

9. Let T and S be the linear transformation from \mathbb{R}^3 to \mathbb{R}^3 given by

$$T(x, y, z) = (3x, 6z - x, -x + 3z)$$

$$S(x, y, z) = (6z, 3y - z, x + y)$$

Let B be the standard basis. Let B' be the basis $\{(1, 0, 1), (1, 0, -1), (0, 1, 0)\}$ and B'' be the basis $\{(0, 0, 1), (0, 1, 0), (1, 0, 0)\}$.

(a) Find M (T, B, B'), M (S, B', B"), and M (ST, B, B").

(b) Calculate M (S, B', B'') * M (T, B, B'). Then compare the result with M (ST, B, B'')