

309 Worksheet 6.7

True or False? Justify your answer:

(1) The kernel of the transformation μ_A , where A is an $m \times n$ matrix, is the solution set of the equation $A\mathbf{x} = \mathbf{0}$.

True — False?

REASON:

(2) The kernel of a linear transformation is a vector space.

True — False?

REASON:

(3) If an $m \times n$ matrix A can be reduced to a matrix U in echelon form and if U has k nonzero rows, then the dimension of the solution space of $A\mathbf{x} = \mathbf{0}$ is $m - k$.

True — False?

REASON:

(4) If A is an $m \times n$ matrix and μ_A is onto, then $\text{rank}A = m$.

True — False?

REASON:

(5) If A is an $m \times n$ matrix and $\text{rank}A = m$, then μ_A is one-to-one.

True — False?

REASON:

(6) A change-of-basis matrix is always invertible.

True — False?

REASON: