

Quiz 5

Name: _____ Solutions _____

Score: _____

1.

Linear functions	n vectors in V
$f : \mathbb{R}^n \rightarrow V$	$\{f(e_1), \dots, f(e_n)\}$ in V
f one to one	linearly indep
f onto	$\text{Span}(v_1, \dots, v_n) = V$
f isomorphism	Basis for V
image of f in V	$\text{Span}(v_1, \dots, v_n)$ in V

2. Find the determinant $\det A$ of the matrix A . Is A invertible?

$$A = \begin{bmatrix} 2 & -5 & 1 \\ 1 & -5 & 0 \\ 7 & -15 & 4 \end{bmatrix}$$

$$\det A = 0$$

Determinant $\det A =$ _____

Invertible

Not Invertible

3. Find the inverse A^{-1} of the matrix A :

$$A = \begin{bmatrix} 1 & -3 & -3 \\ -1 & 4 & 5 \\ 1 & -2 & 0 \end{bmatrix}$$

$$A^{-1} = \begin{bmatrix} 10 & 6 & -3 \\ 5 & 3 & -2 \\ -2 & -1 & 1 \end{bmatrix}$$

$$A^{-1} = \begin{bmatrix} \rule{1cm}{0.4pt} & \rule{1cm}{0.4pt} & \rule{1cm}{0.4pt} \\ \rule{1cm}{0.4pt} & \rule{1cm}{0.4pt} & \rule{1cm}{0.4pt} \\ \rule{1cm}{0.4pt} & \rule{1cm}{0.4pt} & \rule{1cm}{0.4pt} \end{bmatrix}$$