

Quiz 2

MATH 2184-10 - Linear Algebra
Summer 2017

Total Points: 30

Total Time: 20 minutes

Name: _____

Date: 2017-06-12

Read all of the following information before starting the quiz:

- Show all work, clearly and in order, to get full credit.
- Do not use calculators.
- Circle or otherwise indicate your final answers.

1. Let $v = \begin{bmatrix} 5 \\ 3 \\ -2 \end{bmatrix}$ and $A = \begin{bmatrix} 1 & -3 & -2 \\ -5 & 9 & 1 \end{bmatrix}$. Is $v \in \text{Nul } A$? [6]

2. The set $\mathcal{B} = \{1 - t^2, t - t^2, 2 - t + t^2\}$ is a basis for \mathbb{P}_2 . Find the coordinate vector of $p(t) = 1 + 3t - 6t^2$ relative to \mathcal{B} . [10]

3. Let $A = \begin{bmatrix} 1 & 0 & -2 & -2 \\ 0 & 1 & 1 & 4 \\ 3 & -1 & -7 & 3 \end{bmatrix}$.

(a) Find a basis for $\text{Nul } A$.

[10]

(b) Find $\text{rank } A$.

[4]