

UNIVERSITY OF REGINA
DEPARTMENT OF MATHEMATICS AND STATISTICS
MATH 122 200610 Quiz 4 (C Version)

Time: 30 minutes
Instructor: Dr. Edward Doolittle

Name: _____
Student #: _____

(marks) Please do questions 1 and 2. You have 10 minutes to do each question, and 10 minutes to check your work, for a total of 30 minutes for the quiz. A non-programmable calculator is allowed but is not necessary. You may leave early if you can do so without disturbing any of your colleagues. If you finish early, I suggest you check your work thoroughly.

(10) 1. Let A and B be 3×3 matrices. If $\det A = -2$ and $\det B = 5$, evaluate the following expressions.

(a) $\det BA$

(c) $\det A^4$

(e) $\det(B^T A)^{-1} A B^T$

(b) $\det 3A$

(d) $\det A^2 B^T$

- (10) 2. Use determinants to decide whether the following vectors are linearly independent.

$$\begin{bmatrix} 1 \\ 2 \\ 0 \\ -3 \end{bmatrix}, \begin{bmatrix} -3 \\ -5 \\ -4 \\ 10 \end{bmatrix}, \begin{bmatrix} 1 \\ -1 \\ 5 \\ -6 \end{bmatrix}, \begin{bmatrix} -2 \\ -2 \\ 1 \\ 8 \end{bmatrix}$$