

UNIVERSITY OF REGINA  
DEPARTMENT OF MATHEMATICS AND STATISTICS  
MATH 122 200610 Quiz 4 (B 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  $4 \times 4$  matrices. If  $\det A = 3$  and  $\det B = -4$ , evaluate the following expressions.

(a)  $\det BA$

(c)  $\det A^4$

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

(b)  $\det 2B$

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

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

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