

AMSC/CMSC 660      Quiz 2      ,      Fall 2003

Show all work. You may leave arithmetic expressions in any form that a calculator could evaluate. By putting your name on this paper, you agree to abide by the university's code of academic integrity in completing the quiz. Use no books, calculators, cellphones, communication with others, scratchpaper, etc.

Name \_\_\_\_\_

Student number \_\_\_\_\_

1. (10) Find an orthogonal matrix  $Q$  and a number  $z$  so that

$$Q \begin{bmatrix} 3 \\ 4 \end{bmatrix} = \begin{bmatrix} z \\ 0 \end{bmatrix}.$$

2. (10) Write a column oriented algorithm to solve the linear system  $Ax = b$  where  $A$  is an  $n \times n$  nonsingular lower triangular matrix. (5 points for a correct algorithm that accesses  $A$  sequentially by rows instead of columns.)