

Math 274 Final

December 13, 2013

- Please put your name, ID number, and sign and date.
- There are 2 problems worth a total of 50 points.
- **You must show your work to receive credit.**

Print Name: _____

Student ID: _____

Signature and Date: _____

Problem	Score
1	/25
2	/25
Total	/50

1. (25 pts) Let A be an $n \times n$ **symmetric** matrix. Let $B = (b_{ij})$ denote the results of A after **one** step of Gaussian elimination (so $b_{i1} = 0$ for $i = 2, \dots, n$). Prove $b_{ij} = b_{ji}$ for all $i, j = 2, \dots, n$.

2. (25 pts) Prove the **uniqueness** of polynomials of degree ≤ 3 satisfying

x	x_0	x_1
$f(x)$	y_0	y_1
$f'(x)$	z_0	z_1

when $x_0 \neq x_1$.