# FIRST MIDTERM GRADING SCHEME (PARTIAL CREDITS)
# MATH H54

Problem 1:

(a) Get the correct answer but didn't give a proper justification: 1/4.

(b) Get the correct answer but didn't give a proper justification: 1/4.

(c) Mention $(AB)^T = B^T A^T$ but didn't give a counterexample of the statement: 3/4.

(d) Get the correct answer but didn't give a proper justification: 1/4.

(e) Get the correct answer but didn't give a proper justification: 1/4.

Problem 2, 3, 4, 5 (computational problems):

- Almost correct: 8/10.
- Partially correct: 5/10.
- Something is correct: 2/10.
- (with some slight modifications by $\pm 1$)

Problem 6:

- Deduce two of the following correctly: 1) relation between $m$ and $n$; 2) dimension of column space; 3) dimension of null space: 4/5.
- Deduce one of the following correctly: 1) relation between $m$ and $n$; 2) dimension of column space; 3) dimension of null space: 2/5.
- Part of the answers are correct but has crucial logic flaw: at most 1/5.

Problem 7:

- Proof that almost complete: 8/10.
- Part of the proof makes sense: 5/10.
- Something that makes sense is written: 2/10.

Problem 8:

- Proved $\dim \mathrm{Nul}(AB) \geq \dim \mathrm{Nul}(A)$, and said something correct for $B$ invertible case: 7/10.
- Part of the proof makes sense: 5/10.
- Something that makes sense is written: 2/10.