

# Math 211-003: Assignment 8

Due 11/13/2008

These problems are due with work shown by the beginning of class.

#1) Suppose

$$A = \begin{pmatrix} a_{1,1} & a_{1,2} \\ a_{2,1} & a_{2,2} \end{pmatrix} \text{ and } B = \begin{pmatrix} b_{1,1} & b_{1,2} \\ b_{2,1} & b_{2,2} \end{pmatrix}$$

Show that  $(AB)^t = B^t A^t$ .

#2) Sec 7.1)#50

#3) Sec 7.2)#18

#4) Sec 7.2)#38

#5) Sec 7.3)#2

#6) Sec 7.3)#8

*(inconsistent  $\iff$  no solution exists)*

#7) Sec 7.4)#2

#8) Sec 7.4)#16

#9) Sec 7.4)#18

#10a) Find two  $2 \times 2$  matrices  $A$  and  $B$  such that  $AB \neq BA$ .

#10b) Suppose

$$A = \begin{pmatrix} 2 & 0 \\ 0 & 1 \end{pmatrix}$$

Find the form of all matrices  $B$  such that  $AB = BA$  (*i.e.*  $A$  and  $B$  **commute**).