1. Prove that $(AB)' = B'A'$ for any matrices $A$ and $B$.

2. Complete the following exercises from Appendix A.9: 1–3, 7, 9, 10, 12–16, 18–20.

3. Prove Fact V6 from slide 59 of the preliminary linear algebra notes.

4. Let $A$ denote an arbitrary matrix. Let $r$ denote the number of linearly independent rows of $A$. Let $c$ denote the number of linearly independent columns of $A$. Prove that $r = c$. 