Homework 8: Due Monday 11-10-08

Turn in:
Section 4.1 # 3ace, 4ace
Section 4.2 # 4, 5bce, 12
Section 4.3 # 4bd, 9, 10, 12, 18

Do (but do not turn in):
Section 4.1 # 3bd, 4bd
Section 4.2 # 5ad, 9
Section 4.3 # 4ac, 10b

Comments:
4.2.12 Consider minimizing the negative of $p(\boldsymbol{x})$.
4.3.9 We sketched this in class. For part (b) just do parts (i) and (ii)
4.3.12 its not clear what exactly is being asked. If you believe eq. 4.24 then the quantity is $(\boldsymbol{v}^* - \boldsymbol{b})^T(\boldsymbol{v}^* - \boldsymbol{b})$ which is nonnegative from the definition of inner product. However, this equation is not particularly clear from the text. So interpret this as showing that 4.24 is correct using K, $\boldsymbol{f}$ and $\boldsymbol{x}^*$ as given in 4.25 and just before 4.23.
4.3.18 You can do this with just a sentence for each part invoking previous results.

Homework 8: Due Wednesday 11-19-08

Turn in:
Section 5.1 # 10, 15
Section 5.2 # 16
Section 5.3 # 8, 27bd, 28i, 32
Section 5.5 # 2bd
Section 5.6 # 8, 13, 29

Do (but do not turn in):
Section 5.1 # 16
Section 5.2 # 15 Section 5.3 # 7, 12
Section 5.5 # 2ac

Comments:
5.3.32 Assume that $QR = \tilde{Q}\tilde{R}$ rewrite this with Q's on one side and R's on the other and use exercises 5.3.7 and 5.3.12
5.6.13 Use the definition to show directly $\boldsymbol{w} \in W \Rightarrow \in (W^{\perp})^{\perp}$, so $W \subseteq (W^{\perp})^{\perp}$. For $\boldsymbol{v} \in (W^{\perp})^{\perp}$, write $\boldsymbol{v} = \boldsymbol{w} + \boldsymbol{z}$ where $\boldsymbol{w} \in W$ and $\boldsymbol{z} \in W^{\perp}$. Now take the inner product of $\boldsymbol{v}$ with $\boldsymbol{y} \in W^{\perp}$ and use the fact that this is 0 to show $\boldsymbol{z} = \mathbf{0}$.