Math 227 HW3 due on Friday, Jan. 26 at beginning of class

1. Sec. 11.4: 5, 6, 7, 8
2. Sec. 11.5: 4, 6, 8, 19, 25
3. True or False: for a differentiable vector function $\mathbf{r}(t)$,
   \[ ||\mathbf{r}'|| = ||\mathbf{r}||' \]
4. Complete the proof of Theorem 2, page 653-654, by showing that
   \[ \lim_{\Delta s \to 0} \frac{|\Delta T|}{\Delta \theta} = 1. \]
   Hint: Use law of cosines and L’Hopital’s rule.