MA 765 Homework 4
Due Friday, March 9

Let X be a variety, and let L_1, L_2 be line bundles on X.

1. Show that there is a non-trivial map

$$H^0(X, L_1) \otimes H^0(X, L_2) \to H^0(X, L_1 \otimes L_2).$$

2. Using this, show the following:

   (a) If L_1 and L_2 are effective, then $L_1 \otimes L_2$ is effective.

   (b) If L_1 and L_2 are semiample, then $L_1 \otimes L_2$ is semiample.

   (c) If L_1 and L_2 are ample, then $L_1 \otimes L_2$ is ample.