Math 4230, Fall 2012
Homework #6
Due Friday, October 12, 2012

From J. Oprea, *Differential Geometry and Its Applications*:

§2.4: Exercises 2.4.4, 2.4.7

§2.5: Read and work through this section (I've typed in the Maple procedures and put them in a text file on my web site; I rewrote the procedure `normal_curvature` so that it works even if $\mathbf{x}_u, \mathbf{x}_v$ are not orthonormal, since they usually aren't!), and do exercises 2.5.1, 2.5.2, 2.5.3.

BONUS: Compare the results of the `normal_curvature` procedure on my web page with the one in the book for the ruled parametrization of the hyperboloid of one sheet:

```
X(u,v) = <cos(u) - v*sin(u) | sin(u) + v*cos(u) | v >
```

Can you figure out why the procedure in the book gives the wrong answer?

§3.1: Exercises 3.1.4, 3.1.6, 3.1.7, 3.1.10, 3.1.11