Problem Set #3
Due on Friday, 1 February, 2008.

1. Exercise 1E.3 *[5]*

2. Exercise 1F.9 *[5]*

Note: In solving both exercises, you may assume, if you find it useful to do so, that earlier exercises in the text are true.

Lobachevsky alone has looked on Beauty bare.
She curves in here, she curves in here. She curves out there.
Her parallel clefts come together to tease
In un-callipygianous-wise;
With fewer than one hundred eighty degrees
Her glorious triangle lies.
Her double-trumpet symmetry Riemann did not court –
His tastes to simpler-curvedness, the buxom Teuton sort!
An ellipse is fine for as far as it goes,
But modesty, away!
If I'm going to see Beauty without her clothes
Give me hyperbolas any old day.

The world is curves, I've heard it said,
And straightway in it nothing lies.
This then my wish, before I'm dead:
To look through Lobachevsky's eyes.

From Roger Zelazny's novel *Doorways in the Sand*.