

**Mathematics 326H – Geometry II: Projective and non-Euclidean geometries**  
TRENT UNIVERSITY, Winter 2007

**Problem Set #2**

*Due on Thursday, 8 February, 2007.*

1. Find three equivalents of the parallel axiom which have not been mentioned in class. (You may consult sources other than your brain, but please be sure to cite them.) [5]
2. Do *one* of **a** or **b**:
  - a. Pick one of the three equivalents of the parallel axiom you found for **1** and show it is equivalent to your choice of one the equivalents mentioned in class. [5]
  - b. Show that Euclid's Fifth Postulate is equivalent to the Triangle Axiom. [5]
3. Find the error(s) in the purported proof of the Triangle Axiom given in Example I.4 (p. 23) in the text. [5]