Mathematics 2260H – Geometry I: Euclidean geometry
Trent University, Winter 2013

Assignment #8
Incircle and excircles
Due on Friday, 15 March, 2013.

1. Show that there four circles which are tangent to (extensions of) all three sides of $\triangle ABC$. *[10]*

Hint: The centres of these circles must be on the bisectors of certain angles.

NOTE. One of these circles fits inside the triangle – this one is called the *incircle* of the triangle and its centre is the triangle's *incentre* – and the other three are outside it – these are the triangles *excircles* and their centres are the triangle's *excentres*.