Mathematics 226H – Geometry I: Euclidean geometry
TRENT UNIVERSITY, Fall 2006

Problem Set #6
Due in class on Friday, 3 November, 2006.

1. Suppose $\triangle ABC$ is not equilateral. Must the incentre of this triangle be on its Euler line? Prove it or give a counterexample. *[10]*

The Professor's Song

If you give me your attention, I will tell you what I am.
I'm a brilliant math'matician – also something of a ham.
I have tried for numerous degrees, in fact I've one of each;
Of course that makes me eminently qualified to teach.
I understand the subject matter thoroughly, it's true,
And I can't see why it isn't all as obvious to *you*.
Each lecture is a masterpiece, meticulously planned,
Yet everybody tells me that I'm hard to understand,
And I can't think why.

My diagrams are models of true art, you must agree,
And my handwriting is famous for its legibility.
Take a word like "/\/\\\/\\/\\/\\//\/\"[†] (to choose a random word),
For anyone to say he cannot read that, is absurd.
The anecdotes I tell get more amusing every year,
Though frankly, what they go to prove is sometimes less than clear,
And all my explanations are quite lucid, I am sure,
Yet everybody tells me that my lectures are obscure,
And I can't think why.

Consider, for example, just the force of gravity:
It's inversely proportional to something – let me see –
It's r^3 – no, r^2 – no, it's just r, I'll bet –
The sign in front is plus – or is it minus, I forget –
Well, anyway, there *is* a force, of that there is no doubt.
All these formulas are trivial if you only think them out.
Yet students tell me, "I have memorized the whole year through
Ev'rything you've told us, but the problems I can't do."
And I can't think why!

By Tom Lehrer; intended to be sung to the tune of *If You Give Me Your Attention* from *Princess Ida* by Gilbert and Sullivan.

[†] "Minimum" on a blackboard ...