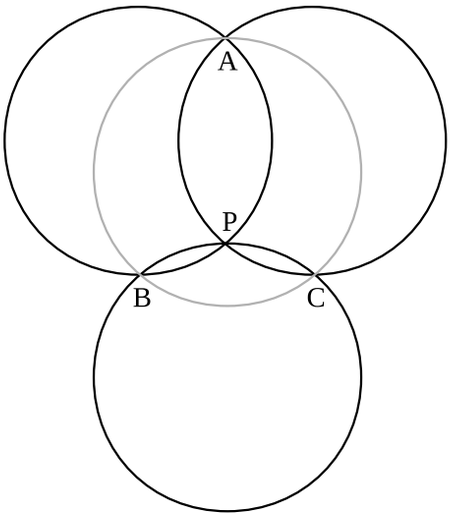
Mathematics 2260H – Geometry I: Euclidean geometry
TRENT UNIVERSITY, Fall 2015

Assignment #6
Circulation?
Due on Monday, 7 December, 2015.

1. Suppose three circles of equal radius go through a common point P, and denote by A, B, and C the three other points where [two] of these circles cross. Show that the unique circle through A, B, and C has the same radius as the original three circles. *[5]*



2. Given $\triangle ABC$, show that there are exactly four circles which are each tangent to (extensions of) all three sides of the triangle. *[5]*

NOTE: One of these circles is the incircle, previously encountered in Assignment #2. The other three are the *excircles* of $\triangle ABC$; their centres are the triangle's *excentres*.