

Mathematics 2260H – Euclidean Geometry

TRENT UNIVERSITY, Winter 2025

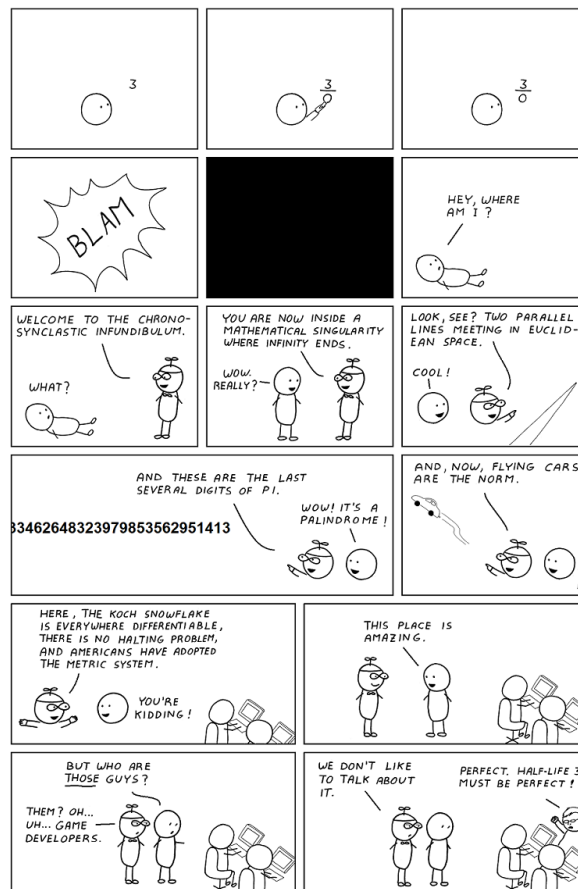
Assignment #9

Coincident Centres

Due on Friday, 21 March.*

Recall that the incentre I of a triangle is the point where the lines bisecting the internal angles of a triangle all meet, while the circumcentre O of a triangle is the point where the lines through the midpoints of, and perpendicular to, the sides of the triangle all meet. I is the centre of the circle tangent to each of the three sides of the triangle, while O is the centre of the circle passing through each of the three vertices of the triangle.

1. Suppose that the incentre I and circumcentre O of $\triangle ABC$ happen to coincide, *i.e.* $I = O$. What kind of triangle is $\triangle ABC$? [10]



From the webcomic *Abstruse Goose*.

* Please submit your solutions, preferably as a single pdf, via Blackboard's Assignments module. If that fails, please submit them to the instructor on paper or via email to sbilaniuk@trentu.ca as soon as you can.