

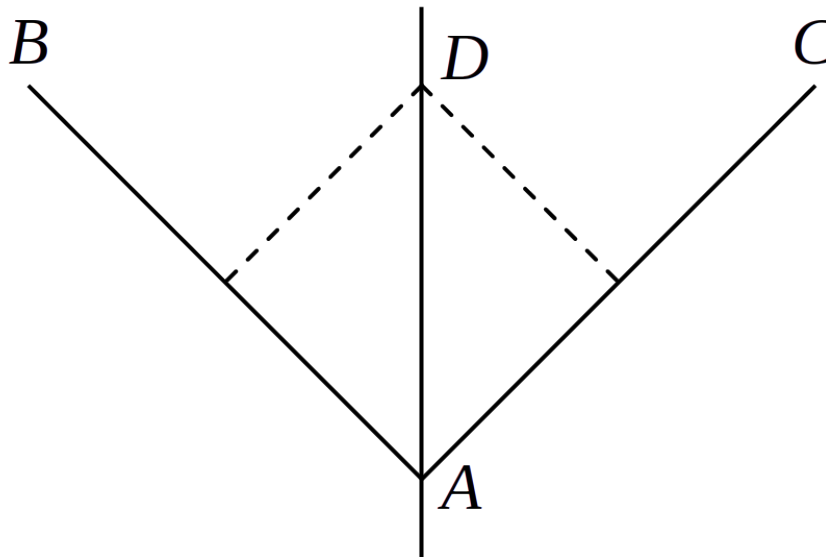
Mathematics 2260H – Geometry I: Euclidean geometry

TRENT UNIVERSITY, Winter 2025

Assignment #8

Angle Bisectors, Triangles, and Circles

Due on Friday, 14 March.*



1. Suppose AB and AC are line segments and D is any point. Show that $\angle BAD = \angle CAD$, i.e. D is on the angle bisector of $\angle BAC$, if and only if D is equidistant from the (extensions of) AB and AC . [4]
2. Given three infinite lines ℓ , m and n , that do not all meet at a single point, and such that no two are parallel, explain how to find the centres of and then draw all the circles that are tangent to all three lines. [6]

“Parallel lines meet at infinity!”

Euclid repeatedly, heatedly, urged.

Until he died, and so reached that vicinity:

in it he found that the damned things diverged.

A grook by *Piet Hein*.

* 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.