

**Mathematics 2260H – Geometry I: Euclidean geometry**

TRENT UNIVERSITY, Winter 2024

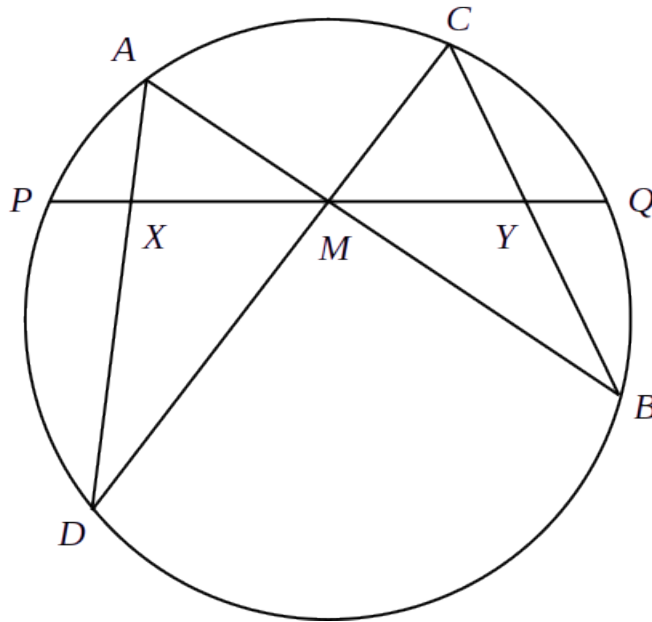
**Assignment #9**

**The Flutterby Butterfly Theorem**

*Due\* just before midnight on Friday, 22 March.*

One more go at circles and chords, with a side of using triangles:

BUTTERFLY THEOREM. Suppose  $PQ$  is a chord of a circle,  $M$  is the midpoint of  $PQ$ ,  $AB$  and  $CD$  are two other chords of the circle that pass through  $M$ , and suppose  $AD$  and  $BC$  meet  $PQ$  in  $X$  and  $Y$  respectively. Then  $M$  is the midpoint of  $XY$ .



1. Prove the Butterfly Theorem. [10]

NOTE: The Butterfly Theorem seems to have been so named because part of the diagram resembles a butterfly.

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\* You should submit your solutions via Blackboard's Assignments module, preferably as a single pdf. If submission via Blackboard fails, please submit your work to your instructor by email or on paper.