

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

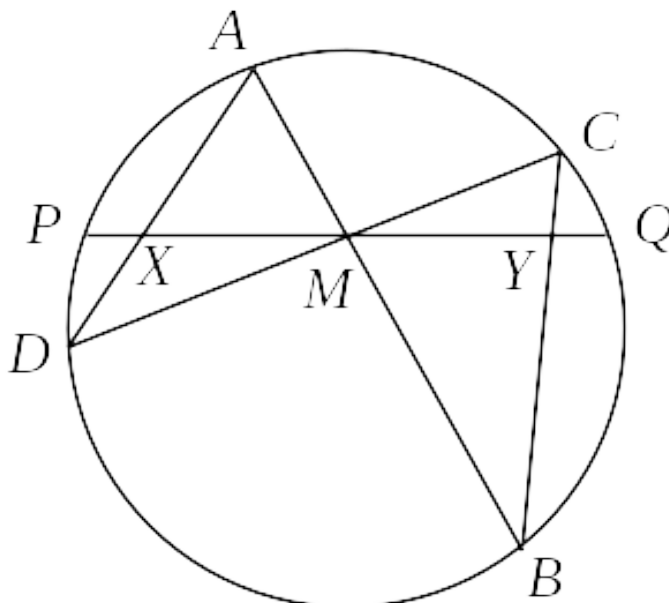
TRENT UNIVERSITY, Fall 2018

**Assignment #Extra**

**Flutter by the Circle**

*Due on Wednesday, 21 April.*

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



1. Prove the Butterfly Theorem. [10]

*Hint:* Cross ratios, angles, and triangles, too!