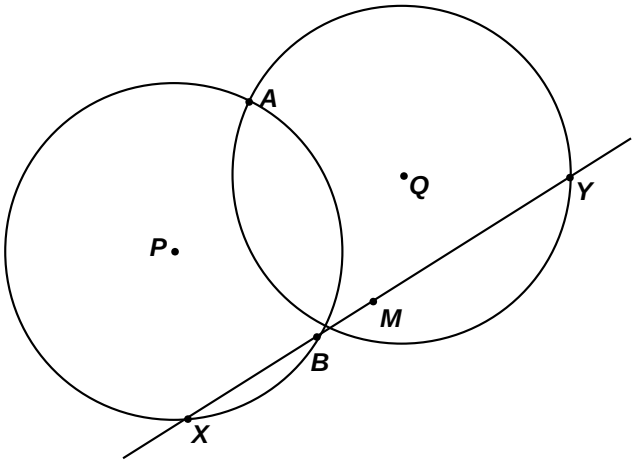
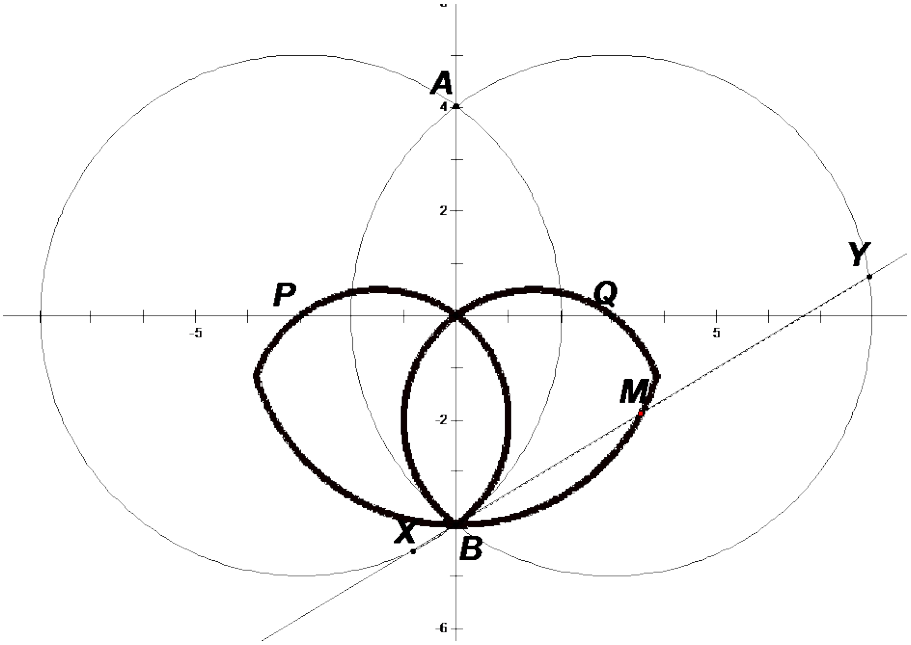
The original problem 5C)
Two circles with centers *P* and *Q* each with a radius of 5 intersect at points *A* and *B*. *PQ* = 6.
An arbitrary line through point *B* intersects the two circles at points *X* and *Y*. Consider the locus of point *M*, the midpoint of segment $\overline{XY}$.
Compute the maximum value of *PM*.



Unfortunately the locus is not a circle as I originally conjectured.
Here's a sketch of the actual locus of point *M* as an arbitrary line through point *B* rotates through 360° with *PQ* = 6 and *PB* = *QB* = 5. I did not expect this at all.



If anyone makes any progress on the original question, please send it to **olson.re@gmail.com**.