

Math 338 - Homework 6

Due Friday 2/18

Answer the following questions. You are encouraged to work with other students and to seek help from the instructor while working on these problems, but please write up your answers on your own.

1. (Boyce 6.3) Prove the Inscribed Quadrilateral Theorem: Let $ABCD$ be a quadrilateral inscribed in a circle. Then $\angle ABC$ and $\angle CDA$ are supplementary, and $\angle BCD$ and $\angle DAB$ are supplementary.
2. (Boyce 6.4) Prove that if A and B are points on a circle such that \overline{AB} is a diameter of the circle, and C is any other point on the circle, then $\triangle ABC$ is a right triangle.
3. (Boyce 6.8) Prove the Tangent-Radius Theorem: Let P be a point on a circle centered at point O , and let \overleftrightarrow{PQ} be a line through P that is tangent to the circle. Then \overline{OP} is perpendicular to \overleftrightarrow{PQ} .