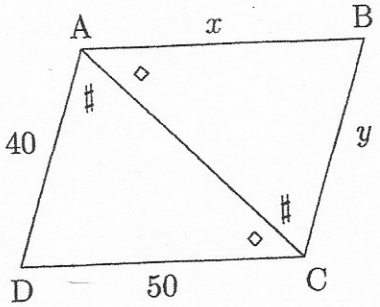
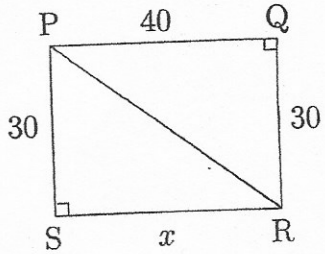
Math 367 In-class Assignment 7

Name Solutions

In the figures below, parts marked with the same symbol are congruent. For each, (a) find the missing values of x and y and (b) justify your answer (e.g. by specifying two triangles that are congruent and which axiom or theorem guarantees that they are congruent).

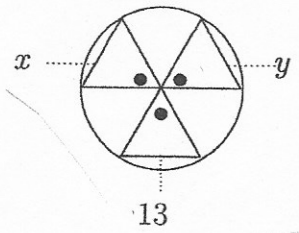


By the ASA Theorem, $\triangle ABC \cong \triangle CDA$.
By CPCFC, $AB \cong CD$ and $CB \cong AD$,
so $x = 50$ and $y = 40$.

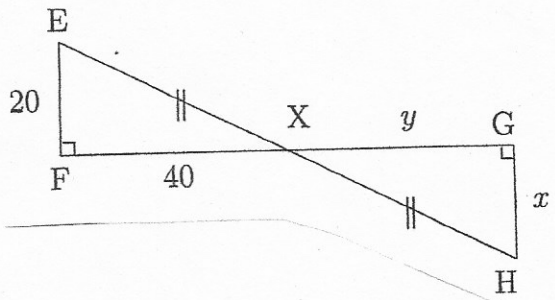


By the HL Theorem, $\triangle PQR \cong \triangle RSP$.
By CPCFC, $RS \cong PQ$, so $x = 40$.

circle with 3 diameters



By the SAS Axiom, the three triangles indicated are all congruent and $x = y = 13$.



By Corollary 38 (Vertical angles are congruent), $\angle EXF \cong \angle HXG$.

By the HA Corollary 51, $\triangle EXF \cong \triangle HXG$.

By CPCFC, $x = 20$ and $y = 40$.