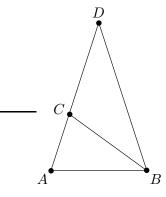
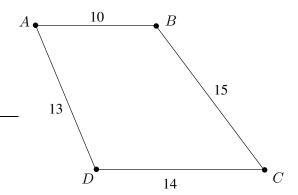
## Geometry for Teachers Some Challenge Problems

1. In the following diagram, AB = BC = CD and AD = BD. Find the measure of angle D.



2. In this diagram,  $\overrightarrow{AB}$  is parallel to  $\overrightarrow{CD}$  and the side lengths are as shown. Find the area enclosed by quadrilateral ABCD.



3. In the diagram below, the small circle is centered at O, the large one is centered at P, and the two circles intersect only at A. The segments  $\overline{BC}$  and  $\overline{PD}$  have lengths as shown. Find the length of  $\overline{CD}$ .

