Three Circles

Three circles, $C_1, C_2$ and $C_3$, all have the same radius, $r_1 = r_2 = r_3$, and share a common point of intersection at $P$. Other points of intersection $V, D$ and $K$ are common to two, but not all three circles. The length of the line segments connecting points $V, D$ and $K$ are as follows;

$$VD = 61cm$$
$$DK = 102cm$$
$$KV = 109cm$$

Find the area of the triangle formed by connecting the center point of each circle.