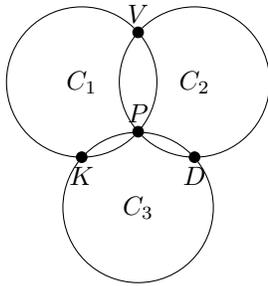# 2018-2019 Undergraduate Problem Solving Contest

Problem Number 5

Due April 1, 2019

Three Circles

(picture not to scale)

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;

$\overline{VD} = 61cm$
$\overline{DK} = 102cm$
$\overline{KV} = 109cm$

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

In the spirit of UPSC, you should not use the internet or look up the solution in a book. Please include your name, student ID number, and email address on your solution. Submit answers at the front desk of the T. Benny Rushing Mathematics Center.