MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 3 - DECEMBER 2009
ROUND 3 COORDINATE GEOMETRY OF LINES AND CIRCLES

******* NO CALCULATORS IN THIS ROUND *******

ANSWERS

A) (____ , ____) (____ , ____)

B) _____

C) _____ = 0

A) The line $4x - 3y - 11 = 0$ passes through the center of $(x-2)^2 + (y+1)^2 = 25$
Determine the coordinates of the two points of intersection.

B) Given $A(-2.9, 5.9)$, $B(0.3, k)$ and $AB = 3.2\sqrt{5}$
Determine all possible values of k.

C) Three vertices of parallelogram $PQRS$ are $P(2, 1)$ $Q(6,11)$ and $S(12, 9)$.
Determine the equation of $\overleftrightarrow{PR}$, in $ax + by + c = 0$ form, where a, b and c are integers, $a > 0$ and GCF$(a, b, c) = 1$.