

MASSACHUSETTS MATHEMATICS LEAGUE
JANUARY 2004
ROUND 1: ANALYTIC GEOMETRY

ANSWERS

A) _____

B) _____

C) _____

A) Find the equation of the line of centers of the circles $x^2 + y^2 + 6x - 2y + 1 = 0$, and $2x^2 + 2y^2 - 8x + 12y - 24 = 0$. Write the equation in $ax + by = c$ form.

B) A triangle with area 18 is formed by the axes and a line with slope $\frac{2}{3}$ which has a positive y-intercept. Calculate in simple radical form, the value of this positive y-intercept.

C) Find the equation of the circle with center at the origin which is tangent to the line $2x + 3y = 39$.