

MASSACHUSETTS MATHEMATICS LEAGUE  
DECEMBER 2003  
ROUND 3: ANALYTIC GEOMETRY

ANSWERS

A) \_\_\_\_\_

B) \_\_\_\_\_

C) \_\_\_\_\_

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A) If  $A = (-3, 5)$ ,  $B = (7, 1)$ , and  $C = (5, 9)$ , calculate in standard  $ax + by = c$  form, the equation of the midline of triangle ABC which is parallel to  $\overline{AB}$ .

B) If  $A = (5, -6)$ ,  $B = (1, 2)$ , and  $C = (k, k)$ ; calculate the value of  $k$  so that  $\overline{AB} \perp \overline{AC}$ .

C) Calculate the area of the region enclosed by the graph of the equation  $2|x - 3| + 3|y + 5| = 12$ .