

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 4 – JANUARY 2007
ROUND 1 ANALYTIC GEOMETRY: ANYTHING**

ANSWERS

A) _____

B) (_____ , _____ , _____)

C) _____ %

A) Find the distance between the parallel lines $3x + 4y = 5$ and $3x + 4y = 9$.

B) A quadratic function $y = ax^2 + bx + c$, has x -intercepts 1 and 5 and y -intercept 2.
Determine the ordered triple (a, b, c) .

C) The area of the ellipse $4(x-1)^2 + 2500(y+2)^2 = 10000$ is approximated by a rectangle whose sides are tangent to the ellipse at the endpoints of its major and minor axes.
To the nearest tenth of a percent, what is the percent error in this overestimate?

Recall: The area of an ellipse is given by the formula πab , where a and b are the distances from the center to the endpoints of the major and minor axes, respectively.