

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 3 - DECEMBER 2007
ROUND 3 ANALYTIC GEOMETRY OF THE STRAIGHT LINE

ANSWERS

A) _____

B) (_____ , _____)

C) _____

A) L_1 is a line with equation $2x - ay = 7$.

L_2 is a line with equation $ax - 4y - 12 = 0$.

L_1 intersects L_2 at the point $P(8, a)$. Find all possible values of a .

B) A line segment has endpoints at $A(-6, 10)$ and $B(29, -18)$.

Find the coordinates of the point P that is $5/7$ of the way from A to B .

C) The line perpendicular to $3x + 2y - 13 = 0$ at $(1, 5)$ passes through the points $P(a, b)$ and $Q(b, a)$.
Compute the distance between P and Q .