

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 3 - DECEMBER 2006
ROUND 3 ANALYTIC GEOMETRY OF THE STRAIGHT LINE

ANSWERS

A) _____ : _____

B) _____

C) $x =$ _____ , $y =$ _____

A) The segment connecting $A(1, 8)$ and $B(6, -2)$ crosses the x -axis at point P .
Determine the ratio $BP: AP$.

B) Given: $A(0, 2006)$ and $B(4250, 0)$

The point $C(p, q)$ is the point on \overline{AB} with integer coordinates that is closest to, but different from, point A .

The point $D(r, s)$ is the point on \overline{AB} with integer coordinates that is closest to, but different from, point B .

Find $p + q + r + s$

C) $\triangle PQR$ has vertices at $P(-12, 0)$, $Q(14, 0)$ and $R(2, 42)$. There is a single point $S(x, y)$ in the interior of $\triangle PQR$ that is equidistant from points P , Q and R . Find the numerical values of x and y .