MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 4 - JANUARY 2013 ANSWERS

Round 1 Analytic Geometry: Anything

A) $5 : 3$ B) C: $(2, -1)$ R: 5 C) $(75, 25, -3, 2)$

Round 2 Alg1: Factoring

A) $2, 3, 4$ B) $-2, \dfrac{-3 \pm \sqrt{33}}{2}$ C) $(x + 2y + 2)(x - 2y + 3)$

Round 3 Trig: Equations

A) 120 B) $\dfrac{\pi}{3}, \dfrac{2\pi}{3}, \dfrac{4\pi}{3}, \dfrac{5\pi}{3}$ C) 14

Answers may be listed in any order.

Round 4 Alg 2: Quadratic Equations

A) $-6, 1$ B) $\dfrac{1}{4}, \dfrac{8}{5}$ C) 52

Round 5 Geometry: Similarity

A) $3 : 5$ B) 144 C) 4

Round 6 Alg 1: Anything

A) 160 B) -30 C) 3

Team Round

A) $\left(4 \pm \sqrt{6}, 0\right)$ D) $(-2, 9)$

B) $-1, -2$ E) $17 : 18 : 50 : 51$

C) $(9, -25, 0, 0, 225)$ F) 27