MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 6 – MARCH 2012 ANSWERS

Round 1 Alg 2: Simultaneous Equations and Determinants

A) $(6, -6, -12, -1)$ B) $(-3, 1, 2)$ C) $(-3, 2)$

Round 2 Alg 1: Exponents and Radicals

A) $(15, 300)$ B) 8 C) $(5, 4, 24)$

Round 3 Trigonometry: Anything

A) $(1.5, 50°)$ B) $\left(\dfrac{\pi}{2}, 4\right)$ C) $\dfrac{1}{9}$

Round 4 Alg 1: Anything

A) $2, 2\sqrt{2}, 2\sqrt{3}$ B) $(-1, 3)$ C) 15 [Ages now S: 25 D: 13]

Round 5 Plane Geometry: Anything

A) 9 B) $\dfrac{3}{16}$ C) $\dfrac{4}{3}\sqrt{15}$

Round 6 Alg 2: Probability and the Binomial Theorem

A) $6 : 31$ B) 240 C) 14

Team Round

A) $(3, 2, -1)$ D) $-3, -1, 3, 5$ (in any order)

B) $(47, 2214)$ E) 94

C) $\dfrac{r}{2}\left(\sqrt{3} - \sqrt{2}\right)$ F) 91