

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 6 – MARCH 2010 ANSWERS**

Round 1 Alg 2: Simultaneous Equations and Determinants

- A) 11 B) $(1, 0), \left(-\frac{1}{3}, -\frac{2}{3}\right)$ C) $(9, -3)$

Round 2 Alg 1: Exponents and Radicals

- A) 113 B) 2 C) 64

Round 3 Trigonometry: Anything

- A) $135^\circ, 315^\circ$ B) $5\sqrt{3}$ feet C) $-\frac{5}{4}$ (or -1.25)

Round 4 Alg 1: Anything

- A) 11 B) 6 C) $-\frac{16}{3}, \frac{5}{64}$

Round 5 Plane Geometry: Anything

- A) 45 B) $2 : 3$ C) 252π

Round 6 Alg 2: Probability and the Binomial Theorem

- A) $\frac{41}{81}$ B) $\frac{4}{5}$ (.8 or 0.8) C) $\left(\pm\frac{2}{3}, 2\right)$

Team Round

- A) $\frac{500}{3}$ (or equivalent) D) $(3, 2)$
- B) $(9, 420, 12)$ E) 35
- C) $\frac{3}{5}$ (.6 or 0.6) F) $2^5 \cdot 3^7 \cdot 11^1$ (the last exponent is not required)