

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 4 - JANUARY 2017 ANSWERS**

Round 1 Analytic Geometry: Anything

A) -8

B) $4\sqrt{17}$

C) $(18, 6, 225)$

Round 2 Alg: Factoring

A) 4

B) 40

C) $-\frac{1}{3}, \frac{5}{2}$

Round 3 Trig Equations

A) 228

B) $\frac{\pi}{2}, \frac{\pi}{3}, \frac{2\pi}{3}$

C) $\frac{5}{7}$

Round 4 Alg 2: Quadratic Equations

A) $(1, -5, 7)$

B) 79

C) $(6, -5, -69)$

Round 5 Geometry: Similarity

A) 4.8 (or $\frac{24}{5}$)

B) 29

C) $\frac{25\pi}{24}$

Round 6 Alg 1: Anything

A) $-\frac{5}{2}$

B) $13_{(\text{base } 11)}$

C) $\frac{1}{12}$

Team Round

A) $\frac{7}{4}, \frac{25}{4}, \frac{16 \pm 3\sqrt{41}}{4}$

D) 2008 $(0, -1)$

B) $(x^2 + 1)(x - 2)(x + 2)(2x - 1)(2x + 1)$

E) $\frac{\sqrt{5} - 1}{2}$

C) $\pm 1, \frac{1}{4}, \frac{5}{4}$

F) 2000