

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 2 - NOVEMBER 2009 ANSWERS**

Round 1 Algebra 2: Complex Numbers (No Trig)

A) i

B) 38

C) $\frac{1}{81}$

Round 2 Algebra 1: Anything

A) 69, 71, 73, 75

B) $-\frac{2}{5}$ (or -0.4)

C) $\frac{300}{w(w-2)}$ or equivalent

Round 3 Plane Geometry: Area of Rectilinear Figures

A) 21

B) $437.5 \left(\text{or } \frac{875}{2} \right)$

C) 85

Round 4 Algebra 1: Factoring and its Applications

A) 2, 8

B) $\pm 2, 5$

C) 9

Round 5 Trig: Functions of Special Angles [Non-Calculator Round]

A) (10, 6, 3)

B) $-\frac{3}{2}$

C) $\sqrt{6} + \sqrt{2}$

Round 6 Plane Geometry: Angles, Triangles and Parallels

A) 126

B) 9

C) 40°

Team Round

A) 4

D) $a^x(a^x - 2)(a^x + 1)(a^x - 3)$

B) 13

E) $2 + \sqrt{3}$

C) $\frac{837}{13}$

F) $\frac{10}{13}$