

**MASSACHUSETTS MATHEMATICS LEAGUE  
CONTEST 2 - NOVEMBER 2015 ANSWERS**

**Round 1 Algebra 2: Complex Numbers (No Trig)**

- A) 103                      B) 3276                      C)  $(0, -729)$

**Round 2 Algebra 1: Anything**

- A) 8                      B) 32, 27, 22, 17                      C) 12

**Round 3 Plane Geometry: Area of Rectilinear Figures**

- A) 116                      B) 15                      C)  $3(\sqrt{3}-1)$  or equivalent

**Round 4 Algebra: Factoring and its Applications**

- A)  $2a(13+a)(7-a)$       B)  $-15, 2, 3, 10$       C)  $(x+4y)(x-4y+4)$   
or  $-2a(a+13)(a-7)$

Note: Any order of the given factors or roots is allowed.

**Round 5 Trig: Functions of Special Angles**

- A)  $\frac{3}{4}$                       B)  $\frac{1}{2}$                       C)  $18+9\sqrt{3}$  or  $9(2+\sqrt{3})$

**Round 6 Plane Geometry: Angles, Triangles and Parallels**

- A) 129                      B) 165                      C) 99

**Team Round**

- A) 9                      D)  $(2, -4, 3)$   
B) 3, 4                      E)  $(-2, -1)$   
C)  $\frac{13+6\sqrt{10}}{4}$                       F)  $75^\circ, 84^\circ$