

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 5 – FEBRUARY 2007 ANSWERS**

Round 1 Alg 2: Algebraic Functions

A) $0 < x < 4/3$

B) 1004

C) 910

Round 2 Arithmetic/ Number Theory

A) (11, 6)

B) 961

C) 1665

Round 3 Trig Identities and/or Inverse Functions

A) $-\frac{429}{629}$

B) $\frac{\sqrt{6}}{6}$

C) $\frac{1 - \cos^2 \theta}{4 \cos \theta}$

Round 4 Alg 1: Word Problems

A) 16

B) 101

C) 236

Round 5 Geometry: Circles

A) 55

B) $3\sqrt{5}$

C) $5\sqrt{3}$

Round 6 Alg 2: Sequences and Series

A) 50

B) 4

C) 2.7 (or equivalent)

Team Round

A) $-3/2$

B) 14

C) 6

D) 62

E) $(360 - p - q)^\circ$

F) 221