

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 5 – FEBRUARY 2009 ANSWERS**

Round 1 Alg 2: Algebraic Functions

- A) 337 B) $\frac{3}{2}$ C) -2

Round 2 Arithmetic/ Number Theory [Non-calculator Round]

- A) 17 B) 505 C) (52, 264) and (195, 121)

Round 3 Trig Identities and/or Inverse Functions

- A) (17, 8) B) 48, 228 C) $(-3, 10)$
or $(48^\circ, 228^\circ)$

Round 4 Alg 1: Word Problems

- A) 63 minutes B) 4017 C) 7 only

Round 5 Geometry: Circles

- A) 150° B) 15, 13 and 12 C) 54π
(in any order)

Round 6 Alg 2: Sequences and Series

- A) 10 B) $-\frac{5}{3}, 135$ C) (7, 82)

Team Round

- A) 4 D) (4, 1) and (0, -1)
B) 263 E) $2\sqrt{5} - \sqrt{2}$
C) $\frac{\sqrt{5}-1}{2}$ F) 16