

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 5 – FEBRUARY 2011 ANSWERS**

Round 1 Alg 2: Algebraic Functions

- A) 2.5 B) $\frac{7}{9}$ C) $-\frac{40}{3}$

Round 2 Arithmetic/ Number Theory

- A) (129, 871) B) (1, 2) C) 3

Round 3 Trig Identities and/or Inverse Functions

- A) 200, 340 B) $-\frac{1}{4}$ C) $-\frac{22}{35}$

Round 4 Alg 1: Word Problems

- A) 32 kg B) $\frac{1}{25}$ C) 7.5 days

Round 5 Geometry: Circles (Exact equivalents in terms of π are acceptable.)

- A) $\frac{9\pi}{4}$ B) $10(4 - \pi)$ C) 83

Round 6 Alg 2: Sequences and Series

- A) 3 B) $\frac{3}{128}$ C) 159

Team Round

- A) $-3 \leq m \leq -\frac{1}{2}$ or $0 < m < \frac{3}{2}$ D) 15, 16, 22
- B) 162 E) $\frac{2}{3}(11 - 2\sqrt{10})$
- C) $\frac{\sqrt{5}-1}{2}$ F) 2011