MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 4 - JANUARY 2012 ANSWERS

Round 1 Analytic Geometry: Anything

A) 30π B) $\left(4\sqrt{3}-1,6\right)$ C) $\left(\dfrac{3}{4},-\dfrac{1}{2}\right)$

Round 2 Alg1: Factoring

A) 29 B) $\dfrac{13}{15}$ C) 4, 13, 15 and 18

(in any order)

Round 3 Trig: Equations

A) $-10°, -50°$ B) $120°, 240°$ C) $45° < x < 135°$

Round 4 Alg 2: Quadratic Equations

A) 6 B) $-\dfrac{6}{7}, 7$ C) 10

Round 5 Geometry: Similarity

A) $\dfrac{6}{k}$ B) $\dfrac{2\sqrt{3}}{3}$ C) 7 and 35

Round 6 Alg 1: Anything

A) 110 B) (685, 685) C) 300 seconds

Team Round

A) $-\dfrac{4}{3}, \dfrac{3}{4}$ D) (30, 13, 3), (10, 3, 7), (22, 9, 7)

B) 84 E) $\dfrac{10}{3} \le k < 5$

C) 0°, 15°, 75°, 180°, 195°, 255° F) $1.60