

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 2 – NOVEMBER 2014
ROUND 1 COMPLEX NUMBERS (No Trig)

ANSWERS

A) _____

B) _____

C) _____

A) Given: $(3 + 4i)^2 + a + bi = 3 + ki$, where a and b are real.
Compute k such that $a = -b$.

B) Given: $\sqrt{12 - 5i} = x + yi$ for real numbers x and y .
Compute $\frac{x^2}{y^4}$.

C) If $\frac{(3\sqrt{3} - 3i)^3 - (3\sqrt{3} + 3i)^3}{108} = x + yi$, compute $x^3 + y^3$.