

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 4 – JANUARY 2008
ROUND 4 ALG 2: QUADRATIC EQUATIONS

ANSWERS

A) Equation: _____

B) _____

C) _____

A) Find a quadratic equation of the form $x^2 + Bx + C = 0$, where B and C are integers, given that $2 - i\sqrt{5}$ is one of its roots.

B) The sum of the squares of two positive real numbers L and W is 81. Twice the larger number is 9 more than the smaller number. Determine $|L - W|$.

C) $x^2 + Ax + B = 0$ and $x^2 + px + q = 0$ are different equations.
Each of the roots of the equation $x^2 + Ax + B = 0$ are 3 more than twice the corresponding roots of $x^2 + px + q = 0$. If $A : B = -2 : 3$, compute the ratio of $p : q$.