

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 6 – MARCH 2009
ROUND 3 ALG 2: ANYTHING

ANSWERS

A) _____

B) (_____ , _____)

C) _____

A) Solve for x : $x^2 + (1 + 2i)x = 1 - i$
Express the answers in $a + bi$ form.

Note: An answer of 2 would be expressed as $2 + 0i$
and an answer of $-3i$ would be expressed as $0 - 3i$.

B) If $f(x) = 3^{mx+b}$, $f(0) = \frac{1}{3}$ and $f(x+2) = 27f(x-2)$, determine the ordered pair (m, b) .

C) The system $\begin{cases} y = 7 - |Ax - 2| \\ y = 0 \end{cases}$ bounds a region whose area is 2009.
If $A > 0$, compute A .