

MASSACHUSETTS MATHEMATICS LEAGUE

FEBRUARY 2004

ROUND 1: ALGEBRAIC FUNCTIONS

ANSWERS

A) _____

B) _____

C) _____

A) If $f(x) = -2x^2 + 7x - 3$, calculate $f(3 + h) - f(3 - h)$ in terms of h .

B) If $f(x) = x + 5$ and $g(x) = x^2$, solve the equation $f(g(2 - a)) = g(f(a - 3))$ for a .

C) If $f(x) = 2x + 1$ and $g(x) = 3x - 2$, solve the equation $f^{-1}(f^{-1}(w)) = f(g^{-1}(w))$ for w .