

**MASSACHUSETTS MATHEMATICS LEAGUE**  
**CONTEST 5 – FEBRUARY 2014**  
**ROUND 1 ALGEBRA 2: ALGEBRAIC FUNCTIONS**

**ANSWERS**

A) \_\_\_\_\_

B) \_\_\_\_\_

C) ( \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ )

A) Given:  $f(x) = -7$ ,  $g(x) = x^2 + 4$  and  $h(x) = -2x$   
Compute  $f(g(h(-3))) + g(f(h(2014))) + h(g(-3))$ .

B) Given:  $y = f(x)$  is a linear function and  $f(f(x)) = 4x + 15$   
Compute all possible values of  $f(2)$ .

C) Given:  $f(x) = 2x^3 - 3x^2 + 8x - 1$   
For a specific value of  $h$ ,  $f(x+h) = 2x^3 + Bx + C$ , that is, the quadratic term disappears.  
Compute the ordered triple  $(h, B, C)$ .