

**MASSACHUSETTS MATHEMATICS LEAGUE**  
**CONTEST 4 - JANUARY 2012**  
**ROUND 2 ALG 1: FACTORING AND/OR EQUATIONS INVOLVING FACTORING**

**ANSWERS**

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

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

C) \_\_\_\_\_

A) The product of two positive integers  $a$  and  $b$  is 210. Determine the minimum value of  $a + b$ .

B) If  $x^3y - xy^3 = 91$  and  $x^3y^2 - x^2y^3 = 105$ , compute the numerical value of  $\frac{1}{x} + \frac{1}{y}$ .

C) The quadratic trinomial  $4x^2 - 17x + A$  factors as  $(ax - b)(cx - d)$ , where  $A$  is a positive integer and  $a, b, c$  and  $d$  are also positive integers. Determine all possible values of  $A$ .