

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 2 - NOVEMBER 2009
ROUND 4 ALG 1: FACTORING AND ITS APPLICATIONS**

***** NO CALCULATORS IN THIS ROUND *****

ANSWERS

A) _____

B) _____

C) _____

A) Solve for x : $\frac{x^2 - 10x + 12}{10x - x^2 - 28} = \frac{1}{3}$

B) Solve for x : $5x^2 + 4x - x^3 - 20 = 0$

C) The polynomial $x^{24} - x^8 - 256x^{16} + 256$ can be written as the product of N binomial factors of the form $(x^a \pm b)$, where a and b are positive integers. Determine the maximum value of N .