

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 6 - MARCH 2014
ROUND 2 ALG1: EXPONENTS AND RADICALS**

ANSWERS

A) _____

B) _____

C) _____

A) Given: $\{A, B, C, D\} = \{-1, 2, 3, 4\}$

Let $N = A^B + C^D$ be a positive integer, where A, B, C , and D are distinct integers.
Compute the minimum value of N .

B) Find all values of x for which the fraction $\frac{1+x}{x - \frac{5}{2x-3}}$ is undefined.

C) Compute all values of x for which $\begin{cases} \frac{2^{x^2+Bx}}{4^{Ax}} = \frac{1}{32} \\ 3^{2A+B+4} = 5^{2(A+B)+3} = 7^{\frac{2A+5}{B}} \end{cases},$

where A and B are rational numbers.