

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 5 - FEBRUARY 2013
ROUND 2 ARITHMETIC / NUMBER THEORY

ANSWERS

A) _____

B) _____

C) _____

A) How many two-digit primes leave a remainder of 1 when divided by 4?
Assume prime refers to positive integers only.

B) The positive integers N and $(N + 1)$ have 3 and 6 positive factors respectively.
Compute the smallest possible value of N .

C) Find the smallest prime factor of $2^{30} - 2^{16} + 1$.