

**MASSACHUSETTS MATHEMATICS LEAGUE  
CONTEST 3 - DECEMBER 2015  
ROUND 2 ARITHMETIC/NUMBER THEORY**

**ANSWERS**

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

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

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

A) Compute the following sum and express your answer as a base 10 integer.

$$3725_8 + 452_6$$

B) The sum of two primes  $A$  and  $B$ , where  $A > B$ , is 60. Compute the average of all possible differences  $A - B$ .

C) Suppose you have a graphing calculator that displays 9 digits.

The largest perfect square that can be displayed is 999, 9\_\_, \_\_\_\_.

Compute the sum of the 5 missing digits, given that  $\sqrt{10} \approx 3.16228$ , rounded to the nearest 5 decimal places.