MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 4 - JANUARY 2015
ROUND 6 ALG 1: ANYTHING

ANSWERS

A) (_____ , _____)

B) _____

C) _____

A) Compute the ordered pair (*A*, *B*) for which $2x^2 + A(x - B) = (2x - 3)(x + 6)$ is an identity, that is, a statement which is true for all values of *x*.

B) In Primordia, the coins are worth 2¢, 5¢, 17¢ and 31¢ (according to the most recent exchange rate). I asked a clerk at the 7-11 Store to give me change for $1.00, but I could not resist adding that I wanted a minimum number of coins. He gave me 9 coins – three 2¢ coins, three 5¢ coins, one 17¢ coin and two 31¢ coins. He should have been able to do better. What is the <u>minimum</u> number of coins he should have given me?

C) Today is Linda's and Sam's birthday. Linda said to Sam, "Comparing our ages 10 years ago, I was 1 year less than twice your age.". Sam said to Linda, "Your age in 13 years will be $\frac{5}{6}$ of my age in 29 years.". In how many years from today will the ratio of Linda's age to Sam's age be 6 : 5 ?