

**MASSACHUSETTS MATHEMATICS LEAGUE**  
**CONTEST 1 - OCTOBER 2009**  
**ROUND 3 ALG 1: LINEAR EQUATIONS**

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

**ANSWERS**

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

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

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

A) A number is 1 more than half of its opposite. Compute the reciprocal of this number.

B) If  $0.06x + 0.15(10 - x) = \frac{3x}{4}$ , compute  $[-x]$ .

Note: The greatest integer in  $x$ , denoted  $[x]$  is the largest integer less than or equal to  $x$ .

C)  $A$ ,  $B$ ,  $C$  and  $D$  are 4 collinear points ordered on a line as indicated in the diagram below.

If  $AD = 203$ ,  $\frac{AC}{BD} = \frac{4}{9}$  and  $\frac{AB}{CD} = \frac{10}{27}$ , compute  $BC$ .

