MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 1 - OCTOBER 2008
ROUND 7 TEAM QUESTIONS - continued

D) A basketball team plays 82 regular season games. A tie is not possible.
Suppose a team has won 45 games and lost 13 games. If this team wins A games out of every B games for the remainder of the season, they will have won better than 4 out of every 5 games. If the GCD of A and B is 1 and $B > A$, how many ordered pairs (A, B) are possible?

E) For some ordered pair (x, y) that satisfies $\begin{cases} x \geq 0 \\ x - 2y \leq 0 \\ x + 2y - 24 \leq 0 \\ 7x - 2y - 24 \leq 0 \end{cases}$ the expression $2008 + 5x - 2y$ assumes a maximum value. Compute this maximum value.

F) S is a set of all positive reduced fractions $\frac{p}{q}$, where $p < q$, with denominators less than or equal to 10. If the elements of S are listed from smallest to largest, the smallest fraction would be 1/10. What is the seventeenth smallest fraction in this list?