SET 2

(1) If $f(x)$, $g(x)$, and $h(x)$ are quadratic polynomials, can the degree eight polynomial $f(g(h(x))) = 0$ have roots $1, 2, 3, 4, 5, 6, 7, 8$?
(2) The integer d is not divisible by 5. Given that for some integer n, we have $an^3 + bn^2 + cn + d$ divisible by 5, show that for some integer m, we have $a + bm + cm^2 + dm^3$ divisible by 5.
(3) A straight line is drawn on an 8 x 8 chessboard. What is the largest possible number of the unit squares with interior points on the line?