



Bilkent University
Department of Mathematics

PROBLEM OF THE MONTH

Term: April 2012

Let x_1, x_2, \dots, x_n be n points on the plane no three of which are collinear and $f(x_k, x_l, x_m)$ be the total number of points lying strictly outside of the triangle with vertices x_k, x_l, x_m . Show that

$$\sum f(x_k, x_l, x_m) \geq \frac{3n-9}{4} \binom{n}{3}$$

where the summation is taken over all non-ordered triples (x_k, x_l, x_m) .