1050-26-18 **shoshana - abramovich*** (abramos@math.haifa.ac.il), Shoshana Abramovich, Department of Mathematics, University of Haifa, Haifa, Israel. *On Superquadracity.*

The definition of a superquadratic function which is widely used is as follows:

A function $\varphi : [0.\infty) \to \mathbb{R}$ is superquadratic provided that for all $x \geq 0$ there is a constant $C(x) \in \mathbb{R}$ such that

$$\varphi(y) \geq \varphi(x) + C(x)(y-x) + \varphi(|y-x|)$$

for all $y \geq 0$.

A different definition of superquadracity, for functions defined on $\mathbb{R}$ is as follows:

The function $\varphi : \mathbb{R} \to \mathbb{R}$ is superquadratic if

$$\varphi(x+y) + \varphi(x-y) \geq 2\varphi(x) + 2\varphi(y),$$

is satisfied for all $x, y \in \mathbb{R}$.

After discussing the differences and similarities of these definitions, we show that the first class of superquadratic functions, leads to many applications. Some of these applications we show here. (Received January 04, 2009)