Abstract. In this paper, we introduce the definition of a convex real valued function $f$ defined on the set of integers, $\mathbb{Z}$. We prove that $f$ is convex on $\mathbb{Z}$ if and only if $\Delta^2 f \geq 0$ on $\mathbb{Z}$. As a first application of this new concept, we state and prove discrete Hermite-Hadamard inequality using the basics of discrete calculus (i.e. the calculus on $\mathbb{Z}$). Second, we state and prove the discrete fractional Hermite-Hadamard inequality using the basics of discrete fractional calculus. We close the paper by defining the convexity of a real valued function on any time scale.