The main objective of this talk is to present the interesting relations that appear between the convex, plurisubharmonic, and holomorphic functions, and their generalisations: the $q$-convex, $q$-plurisubharmonic, and $q$-holomorphic functions. In particular, since convex and subharmonic functions are naturally defined as sub-solutions (in the viscous sense), their generalizations also have a natural definition as sub-solutions. Nevertheless, these interesting relations break apart when the $q$-plurisubharmonic functions are used to define and analyse the $q$-pseudoconvex and relative $q$-pseudoconvex sets. In particular, we present two sets $U \subset V$ and a fixed neighbourhood $W$ of the boundary $bU$, such that $U$ is pseudoconvex in $V$, but every plurisubharmonic function defined on $U$ is bounded from above on $W \cap U$. 