

COMSATS University Islamabad





Department of Mathematics

Assignment # 01

Class: BSM-VIII Due Date: 17-02-2024 (1250PST)
Subject: Convex Analysis Course Code: MTH424

Instructor: Dr. Atiq ur Rehman **Marks:** 20

Name:	Reg: FA21-BSM
Question # 1: Prove that the intersection of an arbitra	ry collection of convex sets is convex.
Question # 2: Define norm of the vector?	

Question # 3: If $v=(-1,2,4)\in\mathbb{R}^3$, then calculate Euclidean norm, L^1 -norm, L^5 -norm, L^p -norm and L^∞ -norm. Please note that L^2 -norm is actually the Euclidean norm.	
Question # 4: Prove that the disc $\ \mathbf{x} - \mathbf{c}\ \le r$, where $\mathbf{x}, \mathbf{c} \in \mathbb{R}^n$, $r \in \mathbb{R}^+$ is convex set.	