Name: Co. No. Serial No.

Math 312 Q 1 15-4-1434

1. _____

2. State and prove Minkowski Inequality.

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3. Verify whether $K = \{x \in \mathbb{R}^2 : \|x\| = 1\}$ is convex or not.

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4. Let V be an inner product space, and define $\|x\| = \sqrt{x \cdot x}$ for every $x \in V$. Prove that:

a. $x \cdot y \leq \|x\| \|y\|$

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b. every inner product space is a normed space.