**Home Work I**

Prof. Dr. P. M. Bajracharya

*Due date*: **Phalgun 21, 2080**

1. Find the *L*1, *L*2 and *L*∞ norms of the following vectors.

i. (5, 2)

ii. (–4, 2, 3)

iii. (1, 2, 3, 4)

iv. (4, –2, 1, 3)

v. (0, 0, 0, 7, 0, 0)

2. Show that the *L*1-norm satisfies each of the conditions in the definition of a norm. First do this for **R**2, and then do this for **R***n*.

3. Show that the *L*∞-norm satisfies each of the conditions in the definition of a norm. First do this for **R**2, and then do this for **R***n*.

4. Let *x* = (1, 1/2, 1/3) in **R**3. Compute the *L*1, *L*2 and *L*∞ norms.

Due Date: 13/9/2021, 4.00PM