DS 623 PE03

For PE03, your code in the Jupyter Notebook should have the following properties:
1) Input: v_1 and v_2 in R^3 (i.e., two three-dimensional vectors)
2) Output:
   a. l_1 norm of v_1:
   b. l_1 norm of v_2:
   c. l_1 distance between v_1 and v_2:
   d. Triangular inequality: $||v_1||_1 + ||v_2||_1 \geq ||v_1+v_2||_1$; True/False
      - Display the length of each vector v1, v2, and v1+v2 with inequality; display "True" if the triangular inequality holds.

   e. l_2 norm of v_1:
   f. l_2 norm of v_2:
   g. l_2 distance between v_1 and v_2:
   h. Triangular inequality: $||v_1||_2 + ||v_2||_2 \geq ||v_1+v_2||_2$; True/False
      - Same as in d

   i. (optional) Area of the parallelogram formed by v1 and v2 in L2. (hint: area = base x height; you can get height using the property of dot product and sin().)

For this assignment, you can use any NumPy and SciPy operations. Use three decimal places for non-integer values.

Example)
    Enter v1: np.array([2, 1, -3])
    Enter v2: np.array([-3, 0, 5])

    Output:
    l1 norm of v1: 6
    l1 norm of v2: 8
    l1 distance between v1 and v2: 8
    Triangular inequality: 6 + 8 ≥ 8; True

    l2 norm of v1: 3.742
    l2 norm of v2: 5.831
    l2 distance between v1 and v2: 5.477
    Triangular inequality: 3.742 + 5.831 ≥ 5.477; True

    Area of the parallelogram formed by v1 and v2 (in l2): 19.874