CS6015 : Linear Algebra and Random Processes
Tutorial #4

Deadline: None

- This tutorial deals with the topics already covered in lectures 11, 12, 13.
- While this is optional, it is strongly recommended that students solve this tutorial.

NAME :

ROLL NUMBER :

1. Answer the following questions about vector norms:
   a. Which norm gives a measure of sparseness?
   b. Which norm gives the maximum element of a vector?

   Solution:

2. Which of the following vectors are orthogonal to each other?
   $u = \begin{bmatrix}1\\2\\4\\7\end{bmatrix}$, $v = \begin{bmatrix}-4\\9\\-1\\2\end{bmatrix}$, $w = \begin{bmatrix}5\\0\\0\\-8\end{bmatrix}$, and $x = \begin{bmatrix}-9\\-2\\0\\4\end{bmatrix}$

   Solution:

Please solve the following questions from the book "Linear Algebra and its applications, fourth edition, Gilbert Strang"

3. Problem Set 3.1, Q 2
4. Problem Set 3.1, Q 7
5. Problem Set 3.1, Q 9
6. Problem Set 3.1, Q 11
7. Problem Set 3.1, Q 14
8. Problem Set 3.1, Q 17
9. Problem Set 3.1, Q 21

10. Problem Set 3.1, Q 28
11. Problem Set 3.1, Q 35
12. Problem Set 3.2, Q 15
13. Problem Set 3.2, Q 16
14. Problem Set 3.2, Q 21
15. Problem Set 3.2, Q 22
16. Problem Set 3.3, Q 1
17. Problem Set 3.3, Q 5
18. Problem Set 3.3, Q 12
19. Problem Set 3.3, Q 17
20. Problem Set 3.3, Q 20
21. Problem Set 3.4, Q 5
22. Problem Set 3.4, Q 9
23. Problem Set 3.4, Q 16
24. Problem Set 3.4, Q 30