

Maple Homework 1 - MTH 215 - Section 2 - Due: April 11, 2008

INSTRUCTIONS

1. The homework must have only one author.
 2. Write a header with the following information: Your name, date, class and section, Maple Homework 1
 3. Before each Maple calculation, insert an explanation (in “text mode”) of what you are about to do.
 4. At the end of each question, write a sentence or two as a summary or conclusion of the question.
 5. Print the homework once you are satisfied with it, and hand it in on April 17 (please do not send me electronic copies or email etc.)
 6. To add more functionality to Maple, begin your homework with the command `with(LinearAlgebra);` (replace the “;” with “:” to suppress output). If you have an older version of Maple, you may have to use `with(linalg);` instead.
 7. To review basic Linear Algebra operations in Maple, go to the “Help → Maple Help” menu item to get a panel, and ask about “Linear Algebra”. OR, to go to the website of MTH215 Section 2 where this information is posted as a PDF.
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QUESTIONS

- (I) Read Example 3 in page 120 of the text. Answer
 - a) questions 41 in page 127, and
 - b) question 42 in page 128.
- (II)
 - a) Generate three 4x5 random matrices M and for each one of them calculate the rank of $M^T M$ and the rank of $M M^T$.
 - b) Is there a general conjecture about these ranks you would like to state based on the evidence you have here with the random matrices? Do you think your conjecture is true for all 4x5 matrices, or only for most of them? explain.