HOMEWORKS EE 510, Fall 2022

Homework #1 DUE

Note: All problems are taken from the book “Linear Algebra and its Applications”, 4th edition by

Gilbert Strang.

Problem Set 1.2: 3, 4 and 10

Problem Set 1.3: 5, 6, 10 and 26

Problem Set 1.4: 4, 10, 20 and 33

Homework #2 DUE

Note: All problems are taken from the book “Linear Algebra and its Applications”, 4th edition by

Gilbert Strang.

Problem Set 1.4: 42 and 49

Problem Set 1.5: 1, 11 and 13

Problem Set 1.6: 2, 10, 20 and 40

Review Section: 1.13 and 1.22

Homework #3 DUE

Note: All problems are taken from the book “Linear Algebra and its Applications”, 4th edition by

Gilbert Strang.

Problem Set 2.1: 8, 15, 22 and 27

Problem Set 2.2: 10 and 45

Problem Set 2.3: 2, 8, 13, 19, 22 and 27 (here only pick three of them, the three ones you want)

Problem Set 2.4: 2, 4 and 14

Problem Set 2.6: 4, 14, 22 and 28

Homework #4 DUE

Note: All problems are taken from the book “Linear Algebra and its Applications”, 4th edition by

Gilbert Strang.

Problem Set 3.1: 6, 7 and 15

Problem Set 3.2: 5, 7, 11 and 12

Problem Set 3.3: 1 and 6

Problem Set 3.4: 2, 5, 6, 13 and 14

Homework # 5 DUE

Problem Set 4.2: 1, 5, 10, 17, 20 and 25

Problem Set 4.3: 8 and 34

Problem Set 4.4: 28

Homework #6 DUE

Note: All problems are taken from the book “Linear Algebra and its Applications”, 4th edition by

Gilbert Strang.

Problem Set 5.1: 1, 5, 17, 20 and 29

Problem Set 5.2: 7, 10 and 18

Problem Set 5.1: 13 and 22

Problem Set 5.2: 11, 29 and 33

Problem Set 5.3: 4 and 17

Problem Set 5.4: 1, 5.b, 9.a and 9.b

Homework #7 DUE

Note: All problems are taken from the book “Linear Algebra and its Applications”, 4th edition by

Gilbert Strang.

Problem Set 5.6: 1, 3 , 8, 13, 15, 23, 29, 38 and 42

Review Exercises: 5.13, 5.15 and 5.30

Homework #8 DUE

Note: All problems are taken from the book “Linear Algebra and its Applications”, 4th edition by

Gilbert Strang.

Problem Set 6.1: 5.a, 5.c, 5.d, 8 and 20

Problem Set 6.2: 1, 5, 7 and 15

Problem Set 6.2: 22, 23 and 32

Problem Set 6.3: 5, 12, 13, 15 and 21

Homework #9 DUE

Note: All problems are taken from the book “Linear Algebra and its Applications”, 4th edition by

Gilbert Strang.

Problem Set 7.2: 3, 4, 9 and 13

Problem Set 7.3: 1

Problem Set 7.4: 1, 4, 5, 7, 10 and 17

Homework #10 DUE

1.KRONECKER

From our textbook:

Problem Set A (page 421) :11,12

From Laub’s handout:

Page 148-149: 2,4, (and optional:6a,7c)

2.PERRON FROBENIUS MARKOV

From our textbook:

Problem Set 5.1: 32

Problem Set 5.3: 10,11,12

From Meyer’s handout:

Pages 667-668: 8.2.1, 8.2.4

Homework #11 DUE

3.LINEAR INEQUALITIES

From our textbook:

Problem Set 8.3: 16,17,18 (Theorems of the Alternative)

Problem 1

Using the Fourier-Motzkin method, check the feasibility of the following system of inequalities:

$x-5y+2z\geq 7$

$x-2y-6z\geq -12$

$-x+6y-4z\geq -10$

$-x+8y-3z\geq -9$

$-10y+z\geq -15$

4.VANDERMONDE-LAGRANGE INTERPOLATION

Problem 2 (Optional)

Find a polynomial p(x) of minimal order, so that:

$p(1)=2$, $p(2)=-2$, $p(3)=7$, $p(4)=1$

Use the: i) Vandermonde matrix, ii) Lagrange interpolation.

From Strang's textbook:

Problem Set B (Appendix B, page 427)

1,3,5,6 (JORDAN)

Homework #12 DUE

EE 510 Fall 2022 Computational HW