

# MATH 425-Spring 2009

## HOMEWORK ASSIGNMENTS

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Last update January 13, 2009

### **1 HOMEWORK ASSIGNMENT 1**

#### **Assigned 1-13-09 – Due 1-23-09**

Do the following problems

1. In the end of Section 2.1 of my lecture notes on MATH 494, p'5-6.  
<http://www2.math.uic.edu/~friedlan/matrlecsum.pdf>  
Problem 1 for  $m = 3$ , Problems 2-3, Problems 4 for  $k = 2$ , 5a-5b for  $n = 3$ , 5c for  $k = 3$ .
2. From Schaum book on Linear Algebra: p'321, (Supplementary problems), 9.45 (a,b); 9.46, 9.48 (a,b), 9.50, 9.55.

### **2 HOMEWORK ASSIGNMENT 2**

#### **Assigned 1-26-09 – Due 2-2-09**

Do the following problems

1. In the end of Section 2.3 of my lecture notes on MATH 425, p' 18 (from the version January 19, 2009).  
<http://www2.math.uic.edu/~friedlan/matrlecsum.pdf>  
Problems: 2a, 3, 4.
2. From Schaum book on Linear Algebra: p'323, (Supplementary problems), 9.61 (a,b); 9.63, 9.65.

### **3 HOMEWORK ASSIGNMENT 3**

#### **Assigned 2-2-09 – Due 2-9-09**

Do the following problems

1. In the end of Section 2.4 of my lecture notes on MATH 425, p' 23 (from the version January 28, 2009).  
<http://www2.math.uic.edu/~friedlan/matrlecsun.pdf>  
 Problems: 2.
2. From Schaum book on Linear Algebra: p'346, (Supplementary problems), 10.40, 10.41, 10.48, 10.50, 10.52, 10.53, 10.54.

#### **4 HOMEWORK ASSIGNMENT 4**

##### **Assigned 2-9-09 – Due 2-16-09**

Do the following problems

1. In the end of Section 2.5 of my lecture notes on MATH 425, p' 27-28 (from the version February 8, 2009).  
<http://www2.math.uic.edu/~friedlan/matrlecsun.pdf>  
 Problems: 1-5.
2. From Schaum book on Linear Algebra: p'347, (Supplementary problems), 10.60, 10.61, 10.62, 10.64.

#### **5 HOMEWORK ASSIGNMENT 5**

##### **Assigned 2-25-09 – Due 3-6-09**

Do the following problems

1. For the matrices in Schaum book on Linear Algebra: p'321, (Supplementary problems) Problems 9.45 (a,b); 9.48 (a,b) Find the following
  - (a) The components of  $A$
  - (b)  $e^A$
  - (c)  $A^l$  for any positive integer  $l$
2. Problem 2 in the end of §3.1 page 33 (February 26 version)
3. Problem 1 in the end of §3.2
4. For all matrices in Problem 1 of this HW solve the differential system  $\mathbf{x}' = A\mathbf{x}$  with the initial condition  $\mathbf{x}(0) = (1, 1, \dots, 1)^\top$ .

#### **6 HOMEWORK ASSIGNMENT 6**

##### **Assigned 3-19-09 – Due 4-3-09**

Do the following problems

1. Do the following problems in Schaum book on Linear Algebra: p'259-261, (Supplementary problems) Problems: 7.57; 7.58; 7.60; 7.65; 7.71; 7.75; 7.80; 7.82; 7.91.

2. Problems: 1; 2 in the end of §4.2 of my notes. (Page 44-45 in the version March 15, 2009.)
3. Optional problems 3; 4; 5 in the end of §4.2 of my notes. (These are more advanced problems.)

## **7 HOMEWORK ASSIGNMENT 7**

### **Assigned 4-13-09 – Due 4-20-09**

Do the following problems

1. Do the following problems in Schaum book on Linear Algebra: p'392-395, (Supplementary problems) Problems: 13.25; 13.27; 13.28; 13.29; 13.32 (b); 13.34; 13.54.
2. Problems: 9(a,b,c) in the end of §4.3 of my notes. (Page 49 in the version March 15, 2009.)

## **8 HOMEWORK ASSIGNMENT 8**

### **Assigned 4-23-09 – Due 5-1-09**

Do the following problems

1. Problems : 1 - 4, 6, 7 in the end of §4.5 of my notes.
2. Problem: 1 in the end of §4.7 of my notes.
3. Problems: 1, 3, 5, 9 in the end of §4.8 of my notes