

HOMWORK ASSIGNMENTS

MCS 361 - Discrete Mathematics, Spring 2009
28925 LCD - undergrad MWF 10:00-10:50, 214 2DH
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1 HOMEWORK ASSIGNMENT 1

Assigned 1-12-09 – Due 1-21-09

1. *Prolog.* There are five persons A, B, C, D, E and 5 jobs 1, 2, 3, 4, 5. The performance of each person at each job is given by the following table.

	1	2	3	4	5
A	0.2	0.4	0.3	0.5	0.6
B	0.3	0.2	0.6	0.6	0.7
C	0.5	0.3	0.4	0.4	0.7
D	0.7	0.4	0.4	0.3	0.5
E	0.6	0.5	0.3	0.4	0.7

Find the best assignment of 5 persons to perform all 5 jobs.

2. §0.1 - page 17: 1; 3a,b; 6; 10; 25; 31; 32; 37; 39.
3. §0.2 - page 27: 1; 2; 4; 11; 12; 17; 24; 31; 34; 35c.
4. §0.3 - page 38: 1a,b,d,f,j; 3; 5; 12; 18.
5. §0.4 - page 49: 1; 2; 3; 5a,c.

2 HOMEWORK ASSIGNMENT 2

**Assigned: §0.5-§0.6 on 1-12-09, §1.1 on 1-25-09
Due 1-29-09**

1. §0.5 - page 55: 1; 2; 3; 6; 7; 8; 12.
2. §0.6 - page 68: 1; 2; 4; 5; 7; 8.
3. §1.1 - page 86-87: 3a, 4a, 5, 6a, 9, 10a.

3 HOMEWORK ASSIGNMENT 3

Assigned on 1-30-09
Due 2-6-09

1. §1.2 - pages 90-91: 1; 2; 5; 8a.
2. §1.3 - pages 104-105: 4a; 7b; 10a.
3. §1.4 - page 113: 4.
4. §1.5 - pages 128-131: 2a; 2b (write it in English); 5(a,b); 25a.

4 HOMEWORK ASSIGNMENT 4

Assigned on 2-5-09
Due 2-13-09

1. §2.2 - pages 148-151: 1; 3; 11; 16; 24a; 36; 37.
2. §2.3 - pages 156-158: 9; 18; 20; 27 (you may use induction if you wish).
3. §2.4 - pages 166-168: 4; 19.

5 HOMEWORK ASSIGNMENT 5

Assigned on 2-14-09 - Due 2-20-09

**Note the material on this assignment may be on the
TEST I-February, 20, 2009**

1. §2.6 - pages 190-194: 4; 7; 12; 16; 29.
2. §2.7 - pages 199-200: 13; 18; 19.
3. (a) Consider a sequence g_0, g_1, \dots defined recursively $g_n = g_{n-1} + g_{n-2}$. Suppose that $g_0 = 0, g_1 = 1$. Show by strong induction that g_1, g_2, \dots , is the Fibonacci sequence.
(b) Let $h_0, h_1, \dots, h_n, \dots$ be a sequence defined recursively $h_n = 2h_{n-1} + 1$, where $h_0 = 0$. Find the exact formula for h_n and prove its validity by induction.
(c) Show by strong induction that $g_n < h_n$ for $n \geq 2$.
4. §3.1 - pages 232-236: 4, 11, 13, 19.

6 HOMEWORK ASSIGNMENT 6

Assigned on 2-24-09 - Due 3-2-09

1. §3.2 - pages 247-249: 1(a,d); 2(a(ii),b (ii)); 3; 7; 8.
2. §3.3 - pages 262-265: 1; 2; 3; 4; 9; 26.

7 HOMEWORK ASSIGNMENT 7
Assigned on 3-1-09 - Due 3-9-09

1. §3.4 - pages 275-278: 1; 7; 25; 32.
2. §3.5 - pages 284-285: 2; 3; 5; 8.
3. §3.6 - pages 292-296: 2; 3; 4; 6; 9.

8 HOMEWORK ASSIGNMENT 8
Assigned on 3-11-09 - Due 3-16-09

§3.7 - pages 306-309: 1; 2; 5; 7; 14; 19; 20; 26; 31.

9 HOMEWORK ASSIGNMENT 9
Assigned on 3-15-09 - Due 3-30-09

§4.2 - pages 325-329: 2; 6; 8; 18.
§4.3 - pages 338-340: 1; 2; 8; 12; 21; 36.

10 HOMEWORK ASSIGNMENT 10
Assigned on 3-31-09 - Due 4-8-09

§4.4 - pages 346-348: 1; 3; 5; 7, 10, 22.
§4.5 - pages 353-354: 1; 3; 5; 10; 21.
§4.6 - pages 362-364: 1(b); 2(b); 4(b); 7; 9; 11; 15.

11 HOMEWORK ASSIGNMENT 11
Assigned on 4-11-09 - Due 4-17-09

§4.7 - pages 372-374: 3; 5; 10 (a,c); 24.
§4.8 - pages 383-385: 1(b); 2(a,d); 3(a); 4(d); 11; 19.
§4.10 - pages 404-406: 1; 3; 6(a,g); 13.

12 HOMEWORK ASSIGNMENT 12
Assigned on 4-19-09 - Due 4-27-09

§6.1 - pages 516-517: 1a; 3.
§6.2 - pages 525-527: 1b; 2a; 3; 4; 5(a,c); 10.
§6.3 - pages 534-539: 1; 4; 7a; 13; 14.

13 HOMEWORK ASSIGNMENT 13
Assigned on 4-27-09 - Due 5-8-09

§6.4 - pages 552-557: 1; 4; 6; 13; 26.
§6.5 - pages 565-569: 3; 5; 8; 10; 14.
§6.6 - pages 575-577: 1; 8a; 13.