CS-227, Discrete Structures I
Spring 2009, Sections 1 & 2

Homework Assignments

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NOTE: Unless stated otherwise, all assigned problems come from the course textbook (Kenneth H. Rosen's *"Discrete Mathematics and its Applications. Sixth Edition."*)

Assignment 1:

Mathematical Logic:

READING:
>   Rosen's sections 1.1, 1.2, and 1.3 (pages 1-16, 20-27, and 30-46).

DELIVERABLE:
>   Do the exercises listed in the table below. Note that the exercises are paired. Those listed in the upper row of the table are add-numbered, and those in the bottom row are even-numbered. Do each of the odd-numbered exercises in the upper row of the table, and compare your answer to that given in the back of the book, to see whether you did it properly. Then do the corresponding problem shown in the lower row of the table. Hand in only your answers to the problems in the lower row of the table. Be sure to show all your work.

Section 1.1, Exercises on pages 16-21:													
Odd-Numbered:	1	3	5	7	13	15	19	23	25	45	55	57	61	63
Even:	2	4	6	8	12	16	18	24	26	46	56	58	62	64

NOTE 1: Be sure to follow the detailed formatting instructions for homeworks that are given in the course syllabus.
NOTE 2: Be sure to include a signed Honor Code declaration on the FIRST page of your homework.

Assignment 2:

Mathematical Proofs:

READING:
>   Rosen's sections 1.5 and 1.6 (pages 63-72 and 75-85).

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DELIVERABLE:

Do the exercises listed in the two tables below. Note that the exercises, with one exception, are paired. Those listed in the upper row of each table are add-numbered, and those in the bottom row are even-numbered. Do each of the odd-numbered exercises in the upper rows of the tables, and compare your answer to that given in the back of the book, to see whether you did it properly. Then do the corresponding problem shown in the lower rows of the table. Hand in only your answers to the problems in the lower rows. Be sure to show all your work.

Section 1.2, Exercises on pages 28-30:										
Odd-Numbered:	3	9	15	17	19	21	23	35	41	
Even:	4	10	14	16	18	20	22	34	40	61. **Describe your algorithm**

Section 1.3, Exercises on pages 46-50:													
Odd-Numbered:	3	5	9	11	13	15	17	19	23	27	31	35	39	43
Even:	2	6	10	12	14	16	18	20	24	26	30	36	38	44

NOTE 1: Be sure to follow the detailed formatting instructions for homeworks that are given in the course syllabus.
NOTE 2: Be sure to include a signed Honor Code declaration on the FIRST page of your homework.

Assignment 3:

Sets and Set Operations:

READING:

Read and Study: "Key Terms and Results" at the end of Rosen's Chapter 1, on pages 104-105, and the Review Questions on pages 105-106.
Rosen's sections 2.1 (pages 111-119) and 2.2 (pages 121-130).

DELIVERABLE:

Do the exercises listed in the three tables below. Note that the exercises, in all or almost all cases, are paired. Those listed in the upper row of each table are add-numbered, and those in the bottom row are even-numbered. Do each of the odd-numbered exercises in the upper rows of the tables, and compare your answer to that given in the back of the book, to see whether you did it properly. Then do the corresponding problem shown in the lower row of the table. Hand in only your answers to the problems in the lower rows. Be sure to show all your work.

Section 1.5, Exercises on pages 72-74:								
Odd-Numbered:	3	9	13	15	19	25	27	31
Even:	4	10	14	16	20	26	28	30

Section 1.6, Exercises on pages 85-86:											
Odd-Numbered:	1	3	7	11	17	19	23	27	33	35	41
Even:	2	4	8	12	18	20	24	26	32	34	42

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Section 2.1, Exercises on pages 119-121:						
Odd-Numbered:	5	7	13	17,19	31	33
Even:	6	8	12,14	18	32	34

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Assignment 4:

Sets and Set Operations (*continued*), and Functions:

READING:

Rosen's sections 2.3 (pages 133-146) and 2.4 (pages 149-160).

Read and Study: "Key Terms and Results" at the end of Rosen's Chapter 2, on page 163, as well as the Review Questions on page 164..

DELIVERABLE:

Do the exercises listed in the two tables below. Note that the exercises, in all or almost all cases, are paired. Those listed in the upper row of each table are add-numbered, and those in the bottom row are even-numbered. Do each of the odd-numbered exercises in the upper rows of the tables, and compare your answer to that given in the back of the book, to see whether you did it properly. Then do the corresponding problem shown in the lower row of the table. Hand in only your answers to the problems in the lower rows. Be sure to show all your work.

Section 2.2, Exercises on pages 130-133:					
Odd-Numbered:	3	49	51	53	55
Even:	4	50	52	54	

Section 2.3, Exercises on pages 146-149:										
Odd-Numbered:	1,2	5	7	9	11	13	13,15	19	27	55
Even:	2	4	6	8	10	12	14	18	26	54

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Assignment 5:

Sequences & Summations, and Elementary Number Theory

READING:

Rosen's sections 3.4 and 3.5 (pages 200-208 and 210-217).

DELIVERABLE:

Do the exercises listed in the two tables below. Note that the exercises, in all or almost all cases, are paired. Those listed in the upper row of each table are add-numbered, and those in the bottom row are even-numbered. Do each of the odd-numbered exercises in the upper rows of the tables, and compare your answer to that given in the back of the book, to see whether you did it properly. Then do the corresponding problem shown in the lower row of the table. Hand in only your answers to the problems in the lower rows. Be sure to show all your work.

Section 2.4, Exercises on pages 160-163:					
Odd-Numbered:	3	5	9	13	15
Even:	4	6	10	14	16

Section 3.4, Exercises on pages 208-210:					
Odd-Numbered:	9	17	27	31	33
Even:	10	16,18	26	32	34

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Assignment 6:

Representation of Integers in a Computer, and Properties of Integers

READING:

Rosen's section 3.6 (pages 219-229).

ABZUG, CHARLES (2008). *Representation of Numbers and Performance of Arithmetic in Digital Computer,* pages 3-28.

DELIVERABLE:

Do the exercises listed in the two tables below. Note that the exercises, with one exception, are paired. Those listed in the upper row of each table are add-numbered, and those in the bottom row are even-numbered. Do each of the odd-numbered exercises in the upper rows of the tables, and compare your answer to that given in the back of the book, to see whether you did it properly. Then do the corresponding problem shown in the lower rows of the table. Hand in only your answers to the problems in the lower rows. Be sure to show all your work.

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Section 3.5, Exercises on pages 217-218:						
Odd-Numbered:	1	3	11	13	21	25
Even:	2	4	10	12, 14a	20	24

Section 3.6, Exercises on pages 229-231:												
Odd-Numbered:	1	3	5,7	9		19	21	23	25	33	39	
Even:	2	4	6	8,10	18	20	22	24	26	32	38	

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Assignment 7:

Floating-Point Numbers, and Applications of Number Theory

READING:

> Rosen's section 3.7 (pages 231-244).

> ABZUG, CHARLES (2008). *Representation of Numbers and Performance of Arithmetic in Digital Computer,* pages 29-31.

DELIVERABLE:

> Do the exercises listed in the two tables below. Note that in the first table the exercises are paired. Those listed in the upper row of the first table are add-numbered, and those in the bottom row are even-numbered. Do each of the odd-numbered exercises in the upper row of the tables and compare your answer to that given in the back of the book, to see whether you did it properly. Then do the corresponding problem shown in the lower row of the table. Hand in only your answers to the problems in the lower row. In the second table, hand in the answers to all of the assigned problems. Be sure to show all your work.

Section 3.7, Exercises on pages 244-246:						
Odd-Numbered:	1	3	5	7	11	19
Even:	2	4	6	8	12	18

Chapter 3, Review Questions and Supplementary Exercises on pages 258-261:					
Odd AND Even:	Review Questions:	12**c**	12**d**	Supplementary Exercises:	31

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NOTE 2: Be sure to include a signed Honor Code declaration on the FIRST page of your homework.

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Assignment 8:

Relations

READING:

Rosen's sections 8.1 (pages 519-527 and 8.2 (pages 530-536.).

DELIVERABLE:

Do the exercises listed in the two tables below. Note that the exercises are paired. Those listed in the upper row of each table are add-numbered, and those in the bottom row are even-numbered. Do each of the odd-numbered exercises in the upper rows of the tables, and compare your answer to that given in the back of the book, to see whether you did it properly. Then do the corresponding problem shown in the lower rows of the table. Hand in only your answers to the problems in the lower rows. Be sure to show all your work.

Section 8.1, Exercises on pages 527-529::								
Odd-Numbered:	3	5	9	11	19	17	28	31
Even:	6	4,6	12	10	16	18	28	30

Section 8.2, Exercises on pages 536-537::							
Odd-Numbered:	5	7	9	11	13	15	31
Even:	4	6	8	10	12	14	30

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Assignment 9:

Representation of Relations

READING:

Rosen's Section 8.3 (pages 537-542).

DELIVERABLE:

Do the exercises listed in the table below. Note that the exercises are paired. Those listed in the upper row of the table are add-numbered, and those in the bottom row are even-numbered. Do each of the odd-numbered exercises in the upper row of the table, and compare your answer to that given in the back of the book, to see whether you did it properly. Then do the corresponding problem shown in the lower row of the table. Hand in only your answers to the problems in the lower row. Be sure to show all your work.

Section 8.3, Exercises on pages 542-544:									
Odd-Numbered:	1	3	9	19	21	23	25	27	31	33
Even:	2	4	10	18	20	24	26	28	32	34

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Assignment 10:

Simple Counting:

READING:

Rosen's Section 5.1 (pages 335-344.
Rosen's Section 5.2 (pages 347-353).
Rosen's Section 5.3 (pages 355-360).

DELIVERABLE:

Do the exercises listed in the tables below. Note that the exercises are paired. Those listed in the upper row of each table are add-numbered, and those in the bottom row are even-numbered. Do each of the odd-numbered exercises in the upper row of each table, and compare your answer to that given in the back of the book, to see whether you did it properly. Then do the corresponding problem(s) shown in the lower row of the table. Hand in only your answers to the problems in the lower rows. Be sure to show all your work.

Section 5.1, Exercises on pages 344-347:													
Odd-Numbered:	1	3	5	7	9	11	13	19	21	23	31	33	
Even:	2	4	6	8	10	12	14	18	20	24	30	32	

Section 5.2 Exercises on pages 353-354:						
Odd-Numbered:	1	3	5	15	17	33
Even:	2	4	6	16	18	32

Section 5.3, Exercises on pages 360-362:											
Odd-Numbered:	1	3	5	7	11	13	15	19	21	23	25
Even:	2	4	6	8	12	14	16	18	20,22	24	26

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