

MTH 220 Suggested Homework Problems

Discrete Mathematics with Applications, 4th ed., by Susanna S. Epp

Note: Problems whose numbers are BLUE have answers (or at least hints) in the back of the book. Most of these suggested problems are blue, but there are a few that are not.

Unit 1: Propositional and Predicate Logic

<u>Section</u>	<u>Pages</u>	<u>Problems</u>
2.1	37 – 38	5, 6, 8(a,d), 10(a,c), 12, 14, 16, 21, 23, 25, 27, 32, 34, 36, 40, 41
2.2	49 – 50	5, 7, 9, 13(a), 14(a), 19, 20(a,d,f), 21(a), 22(a,d,f), 23(a,d,f), 24, 26, 32, 40, 42
2.3	61 – 63	1, 3, 6, 7, 8, 12(a), 24, 25, 26, 27, 41, 43
3.1	106 – 108	1(a,b), 2, 3, 4(b), 5(a,c), 9, 11, 13, 14, 16(a,c,e), 17(a), 19, 22(a), 23(a), 32(a,c), 33(a,b)
3.2	115 – 117	1, 3(a,c), 4(a,c), 5(a), 6(a), 9, 11, 13, 15(a,c), 16, 18, 20, 22, 25(a), 26, 39, 41
3.3	129 – 130	2(a,b), 3(a,b), 4(a), 9(a), 12(a,b), 13, 14, 15, 18, 22, 29, 37, 41(a,b,e), 42

Unit 2: Elementary Number Theory, Methods of Proof, and Induction

<u>Section</u>	<u>Pages</u>	<u>Problems</u>
4.1	161 – 162	1, 4, 9, 11, 24, 25, 29, 31, 33, 39, 43, 44, 45, 47
4.2	168 – 170	9, 11, 13, 15, 16, 17, 18, 24, 35, 37 Note: For #24, use the definition of a rational number (not the theorems and exercises mentioned in the directions).
4.3	177 – 179	1, 2, 4, 6, 7, 8, 10, 12, 15, 16, 17, 18, 19, 24, 26, 27, 37(a), 40(a)
4.4	189 – 190	1, 3, 5, 7, 16, 19, 20, 23, 27, 28, 29, 38
4.6	205 – 206	3, 5, 10, 11, 19, 21, 25, 26, 30
4.7	212 – 213	3, 5, 7, 9, 13, 15, 26
4.8	225	9, 10, 13, 14
5.2	256 – 257	6, 8, 10, 13, 15
5.3	266 – 267	8, 9, 11, 16, 19, 31

Unit 3: Set Theory and Functions

<u>Section</u>	<u>Pages</u>	<u>Problems</u>
6.1	349 – 351	1(a,c,e), 3(a,b), 9(a), 10(a,b,c,d,e), 11, 13(b,d), 16(a), 18(a,b), 27(a,d), 28, 31, 32(a)
6.2	364 – 366	5, 7, 8, 9, 11, 12, 13, 16, 18, 25, 27, 29, 30, 33
6.3	372 – 373	1, 3, 5, 6, 9, 12, 22(a), 25(a,b,c)
7.1	393 – 396	1, 3(a,c), 7(a,c), 8(a,b), 9(a,b,c), 10(a,b,c), 11(a,b), 25(a), 26(a), 38, 41, 43, 45, 46
7.2	413 – 416	1 – 7, 9(a), 10, 11, 13(a), 14, 15, 23, 42, 44, 45, 46, 47, 52
7.3	426 – 427	1, 3, 6, 8(a), 9, 18, 19, 23
7.4	439 – 440	1, 2, 3, 8, 10, 11, 18

Unit 4: Big-O Notation, Relations, and Combinatorics

<u>Section</u>	<u>Pages</u>	<u>Problems</u>
Big-O	NA	Worksheet
8.1	448 – 449	1(a), 3(a,b), 4(a,b), 5(a), 6(a), 7(a), 10, 13, 15
8.2	458	1, 3, 6, 9, 15, 20, 23, 28
8.3	475 – 477	1, 3, 5, 8, 15, 16(a), 20, 21, 25, 36, 38
9.1	523 – 524	2, 3, 5, 7, 9, 11, 13, 18
9.2	536 – 539	8, 9, 11(a,b), 12(a), 14(a,b,d), 22(a), 32(a,b), 34, 35, 37(a), 38(a), 39(a,c)
9.3	549 – 552	1, 3, 4, 8(a), 11, 13, 16, 33(a,b), 35
9.5	581 – 583	1, 3, 5(a,b), 6, 8, 9(b), 19, 25(a,b)

Additional Topics on Final: Additional Topics in Combinatorics

9.6	590 – 591	1(a), 3, 10, 11
9.7	603 – 604	1, 3, 5, 6, 10, 12, 19, 21, 23, 29, 31, 33, 36, 37, 38, 43, 45, 53