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| EE260 Assignment 1 |

**Submitted by:**

**Brandon Tomota**

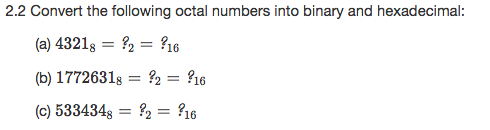
Grade:



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| Date of Submission: | 1/27/18 |
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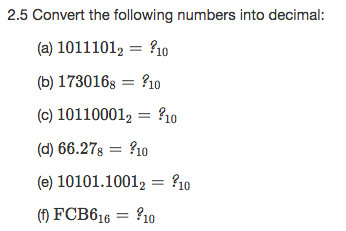
1. (5 pts) Problem 2.2 (a)-(c)
2. (5 pts) Problem 2.5 (a)-(f)
3. (5 pts) Problem 2.7 (a)-(b)
4. (5 pts) Problem 2.12 (a)-(b)
5. (5 pts) Problem 2.13
6. (10 pts) Problem 2.35

1)



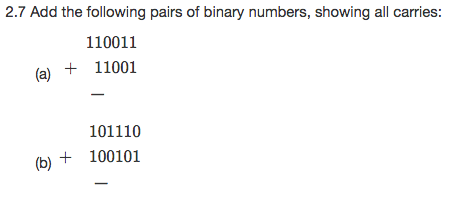
1. (4321)8 = 100|011|010|001 = (100011010001)2 = 1000|1101|0001 = (8D1)16
2. (1772631)8 = 001|111|111|010|110|011|001 = (1111111010110011001)2 = 0111|1111|0101|1001|1001 = (7F599)16
3. (533434)8 = 101|011|011|100|011|100 = (101011011100011100)2 = 0010|1011|0111|0001|1100 = (2B71C)16

2)



1. (1011101)2 = (1\*26) + (0\*25) + (1\*24) + (1\*23) + (1\*22) + (0\*21) + (1\*20) = (93)10
2. (173016)8 = (1\*85) + (7\*84) + (3\*83) + (0\*82) + (1\*81) + (6\*80) = (62990)10
3. (10110001)2 = (1\*27) + (0\*26) + (1\*25) + (1\*24) + (0\*23) + (0\*22) + (0\*21) + (1\*20) = (177)10
4. (66.27)8 = (6\*81) + (6\*80) + (2\*8-1) + (7\*8-2) = (54.359375)10
5. (10101.1001)2 = (1\*24) + (0\*23) + (1\*22) + (0\*21) + (1\*20) + (1\*2-1) + (0\*2-2) + (0\*2-3) + (1\*2-4) = (21.5625)10
6. (FCB6)16 = (15\*163) + (12\*162) + (11\*161) + (6\*160) = (64694)10

3)



1. 11 1

110011

+11001

1001100

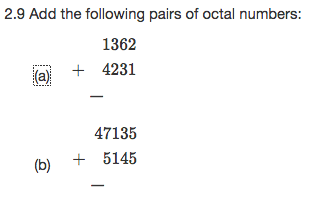
1. 1 11

101110

+ 100101

1010011

4)



1. 1

1362

+4231

5613

1. 1 11

47135

+5145

54302

5)

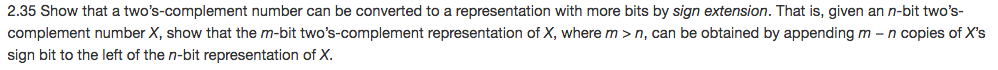


Minimum distance = 2c + d + 1 (correct errors in up to c bits, detect errors in d additional bits)

Minimum distance d + 1 c = 0

Can detect up to d-bit errors

6)



n bit m bit

Ex: n = 5, m = 7

10101 (n-bit) = 1110101(m-bit)

By adding the two’s compliment of the n-bit number to the m-bit number, we can show the two are equivalent if the sum is zero

10101 01010 + 1 = 01011 (two’s compliment of the n-bit)

111111

1110101 (m-bit)

+01011 (two’s compliment of n-bit)

10000000

Ex: n = 3, m = 4

011 (n-bit) = 0011(m-bit)

By adding the two’s compliment of the n-bit number to the m-bit number, we can show the two are equivalent if the sum is zero

011 100 + 1 = 101 (two’s compliment of the n-bit)

0011 (m-bit)

+ 101 (two’s compliment of n-bit)

1000