Number System Exercises

1 Convert the following decimal numbers into binary

a) 39 b) 59 c) 512 d) 63 e) 256

2 Convert the following binary numbers into decimal

a) 1101 b) 11011 c) 1011 d) 100100 e) 1111

3 Convert the following decimal numbers into hexadecimal

a) 10 b) 16 c) 24 d) 39 e) 163

4 Convert the following hexadecimal numbers into decimal

a) F b) 15 c) A5 d) 4E e) FF

5 Convert the following binary numbers into hexadecimal

a) 10110111 b) 10011100 c) 1100 d)100110 e) 110111

6 Convert the following hexadecimal numbers into binary

a) F9 b) 1A c) D8 d) B e) 8

7 Add these binary numbers and check your answer by converting them to decimal

a) 1011 + 1101 b) 1110 + 1111 c) 10001 + 101 d) 101 + 10101 e) 111 + 111

8 Subtract these binary numbers and check your answer by converting them to decimal

a) 1111 – 1000 b) 1101 – 1011 c) 1110 – 11 d) 10101010 – 1111 e) 11000 – 111

9 Convert these 8 bit sign and magnitude binary numbers into decimal

a) 00100110 b) 10000111 c) 10010011 d) 01010101 e) 11110000

10 Convert these 8 bit 2’s complement binary numbers into decimal

a) 00001111 b) 10001100 c) 11001100 d) 10100011 e) 11110000

11 Convert these decimal numbers into sign and magnitude 8 bit binary form

a) +5 b) -5 c) -127 d) -67 e) -0

12 Convert these decimal numbers into 2’s complement 8 bit binary form

a) +10 b) -10 c) +127 d) -127 e) -128