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ECE 301-002

HW 1

1. (a) 10110111

128 + 32 + 16 + 4 + 2 + 1 = 183

(b) 11101011

128 + 64 + 32 + 8 + 2 + 1 = 235

(c) 10000101

128 + 4 + 1 = 133

1. (a) 356

356/2 = 178 0

178/2 = 89 0

89/2 = 44 1

44/2 = 22 0

22/2 = 11 0

11/2 = 5 1

5/2 = 2 1

2/2 = 1 0

1/2 = 0 1

0/2 = 0 0

356 = 000101100100

(b) 107

107/2 = 53 1

53/2 = 26 1

26/2 = 13 0

13/2 = 6 1

6/2 = 3 0

3/2 = 1 1

1/2 = 0 1

0/2 = 0 0

107 = 000001101011

(c) 218

218/2 = 109 0

109/2 = 54 1

54/2 = 27 0

27/2 = 13 1

13/2 = 6 1

6/2 = 3 0

3/2 = 1 1

1/2 = 0 1

0/2 = 0 0

218 = 000011011010

1. (a) +0.45

r1 = 10

r2 = 2

(r2)r1 = 2

0.45 \* 2 = 0 + 0.9

0.9 \* 2 = 1 + 0.8

0.8 \* 2 = 1 + 0.6

0.6 \* 2 = 1 + 0.2

0.2 \* 2 = 0 + 0.4

0.4 \* 2 = 0 + 0.8

+0.45 = 00.011100…

(b) +0.75

r1 = 10

r2 = 2

(r2)r1 = 2

0.75 \* 2 = 1 + 0.5

0.5 \* 2 = 1 + 0.0

+0.75 = 00.110000

(c) +0.9

r1 = 10

r2 = 2

(r2)r1 = 2

0.9 \* 2 = 1 + 0.8

0.8 \* 2 = 1 + 0.6

0.6 \* 2 = 1 + 0.2

0.2 \* 2 = 0 + 0.4

0.4 \* 2 = 0 + 0.8

0.8 \* 2 = 1 + 0.6

+0.9 = 00.111001…

1. (a) +227.1

227 + 0.1

227/2 = 113 1

113/2 = 56 1

56/2 = 28 0

28/2 = 14 0

14/2 = 7 0

7/2 = 3 1

3/2 = 1 1

1/2 = 0 1

0/2 = 0 0

227 = 000011100011

r1 = 10

r2 = 2

(r2)r1 = 2

0.1 \* 2 = 0 + 0.2

0.2 \* 2 = 0 + 0.4

0.4 \* 2 = 0 + 0.8

0.8 \* 2 = 1 + 0.6

0.1 = 0.0001…

+227.1 = 000011100011.0001…

(b) +1408.55

1408 + 0.55

1408/2 = 704 0

704/2 = 352 0

352/2 = 176 0

176/2 = 88 0

88/2 = 44 0

44/2 = 22 0

22/2 = 11 0

11/2 = 5 1

5/2 = 2 1

2/2 = 1 0

1/2 = 0 1

0/2 = 0 0

1408 = 010110000000

r1 = 10

r2 = 2

(r2)r1 = 2

0.55 \* 2 = 1 + 0.1

0.1 \* 2 = 0 + 0.2

0.2 \* 2 = 0 + 0.4

0.4 \* 2 = 0 + 0.8

0.55 = 0.1000

+1408.55 = 010110000000.1000…