**Nolan Anderson CPE 221-01 Homework #1**

I am putting my answers here so you can see it better, PDF files show my work and answers 😊.

**1.0\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**a)** -3,500 **==** 1111 0010 0101 0100

**b)** 49680 == NOT POSSIBLE. 2^16 = 65536. And 65536/2 = +-32768 and 49680 is larger than 32786. Therefore, 49680 cannot be represented with 16 bits.

**1.8\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**a)** 1011 1111 0010 0100

**b)** 1011 1111 0010 0100

**c)?** Converting from decimal, then to hex and finally to binary is an easier process. There are less steps and the likelihood of making a mistake is lower.

**1.20\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**a)** 497 -> binary: 0000 0001 1111 0001

**b)** 1234 -> binary: 0000 0100 1101 0010

**c)** -497: 1111 1110 0000 1111

**d)** -1234: 1111 1011 0010 1110

**e)** (497)+(-1234): 1111 1101 0001 1111 == -737

**f)** (-497) + (1234): [1] 0000 0010 1110 0001 == 737

**g)** (-497) + (-1234): [1] 1111 1001 0011 1101 == -1731

**1.99\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**a)** -461

**b)** 858

**c)** -587

**d)** 1503

**2.6\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**a)** 334620

**b)** 3033

**c)** 20564

**d)** 941585