1. Decimal to hexadecimal:
   1. 239

Place Values: 16 1

Digits: 14 15

239 – 224 15 – 15

= 15 = 0

**Answer: E F**

1. Decimal to unsigned 8-bit binary:
   1. 5

Place Values: 128 64 32 18 8 4 2 1

Digits: 0 0 0 0 0 1 0 1

5 - 4 1 - 1

= 1 = 0

**Answer: 0000 0101**

* 1. 175

Place Values: 128 64 32 18 8 4 2 1

Digits: 1 0 1 0 1 1 1 1

175 - 128 47 – 32 15 – 8 7 – 4 3 – 2 1 - 1

= 47 = 15 = 7 = 3 = 1 = 0

**Answer: 1010 1111**

1. Hexadecimal to binary (need not show work):
   1. 0x8e

**1000 1110**

* 1. 0x7B41 09FC

**0111 1011 0100 0001 0000 1001 1111 1100**

1. Binary to hexadecimal (all unsigned values)
   1. 1101

**0xD**

* 1. 0110 1111

**0x6F**

* 1. 0001 1001 1100 0011 1011 0111 1010 0000

**0x19C3 B7A0**

1. Decimal to 2's complement binary, 8-bit notation:
   1. 124

Place Values: 128 64 32 18 8 4 2 1

Digits: 0 1 1 1 1 1 0 0

124 - 62 62 - 32 30 - 18 12 - 8 4 - 4

= 62 = 30 = 12 = 4 = 0

**Answer: 0111 1100**

* 1. -7

Place Values: 128 64 32 18 8 4 2 1

Digits: 0 0 0 0 0 1 1 1

7 - 4 3 - 2 1 - 1

= 3 = 1 = 0

1111 1000

+ 1

1111 1001

**Answer: 1111 1001**

* 1. -110

Place Values: 128 64 32 18 8 4 2 1

Digits: 0 1 1 0 1 1 1 0

110 - 64 46 - 32 14 - 8 6 - 4 2 - 2

= 46 = 14 = 6 = 2 = 0

1001 0001

+ 1

1001 0010

**Answer: 1001 0010**

1. 2's complement binary notation to decimal:
   1. 1101 0010

0010 1101

+ 1

0010 1110 🡪

Place Values: 128 64 32 18 8 4 2 1

Digits: 0 0 1 0 1 1 1 0

= 32 + 8 + 4 + 2 = - 46 **Answer = - 46**

* 1. 0110 1101

Place Values: 128 64 32 18 8 4 2 1

Digits: 0 1 1 0 1 1 0 1

= 64 + 32 + 8 + 4 + 1 = 107 **Answer = 107**

* 1. 0000 0100

Place Values: 128 64 32 18 8 4 2 1

Digits: 0 0 0 0 0 1 0 0

= 4 **Answer = 4**

* 1. 1011 0101

0100 1010

+ 1

0100 1011 🡪

Place Values: 128 64 32 18 8 4 2 1

Digits: 0 1 0 0 1 0 1 1

= 64 + 8 + 2 + 1 = 75 **Answer = - 75**

* 1. 1111 1111 1111 1111 1111 1111 1111 1111

0000 0000 0000 0000 0000 0000 0000 0000

+ 1

0000 0000 0000 0000 0000 0000 0000 0001

**Answer = - 1**