1. a) $239/_{16} = 14 R 15 = 0xEF$ //

2. a) $5 = \frac{0}{64} \quad \frac{0}{32} \quad \frac{0}{16} \quad \frac{0}{8} \quad \frac{1}{4} \quad \frac{0}{2} \quad \frac{1}{1} = 0000101_2$ //

   b) $175 = \frac{1}{128} \quad \frac{0}{64} \quad \frac{1}{32} \quad \frac{0}{16} \quad \frac{1}{8} \quad \frac{1}{4} \quad \frac{1}{2} \quad \frac{1}{1} = 10101111_2$ //

3. a) $0x8e = 142_{10} = \frac{1}{128} \quad \frac{0}{64} \quad \frac{0}{32} \quad \frac{0}{16} \quad \frac{1}{8} \quad \frac{1}{4} \quad \frac{1}{2} \quad \frac{0}{1} = 10001110_2$ //

   b) $0x7B41 \ 09FC =$

8	4	2	1
7	0	1	1	1
B	1	0	1	1
4	0	1	0	0
1	0	0	0	1
0	0	0	0	0
9	1	0	0	1
F	1	1	1	1
C	1	1	0	0

   $\downarrow_2$

   $A = 11$
   $B = $
   $C = $
   $D = 13$

4. a) $1101 = \frac{8 \ 4 \ 2 \ 1}{8 + 4 + 1} = 13 = 0xD$

   b) $0110 \ 1111 = \frac{4 + 2 = 6}{8 + 4 + 2 + 1 = 15} = 0x6F$

   c) $0001 \ 1001 \ 1100 \ 0011 \ 1011 \ 0111 \ 1010 \ 0000$
   $= 0x19C3B7A0$

5. a) $124 = \underline{0\ 1\ 1\ \ \ 1\ 1\ 1\ 0\ 0}_2$

128 64 32   16 8 4 2 1

b) $7 = 0\ 0\ 0\ 0\ 0\ 1\ 1\ 1$

$\ 1\ 1\ 1\ 1\ 1\ 0\ 0\ 0$

$\ \underline{\hphantom{1\ 1\ 1\ 1\ 1\ 0\ 0}\ \ 1}$

$-7 = \ 1\ 1\ 1\ 1\ 1\ 0\ 0\ 1$

c) $110 = 0\ 1\ 1\ 0\ 1\ 1\ 1\ 0$

$\ 1\ 0\ 0\ 1\ 0\ 0\ 0\ 1$

$\ \underline{\hphantom{1\ 0\ 0\ 1\ 0\ 0\ 0}\ \ 1}$

$-110 = \ 1\ 0\ 0\ 1\ 0\ 0\ 1\ 0$

6. a) $1101\ 0010 = -128 + 64 + 16 + 2 = -46$

b) $0110\ 1101 = 64 + 32 + 8 + 4 + 1 = 109$

c) $0000\ 0100 = 4$

d) $1011\ 0101 = -128 + 32 + 16 + 4 + 1 = -75$

e) $1111\ 1111\ 1111\ 1111\ 1111\ 1111\ 1111\ 1111 = -128$