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ELEC 2200

Hw #2

1. 51_{10}

51/2 = 25 R1
25/2 = 12 R1
12/2 = 6 R0
6/2 = 3 R0
3/2 = 1 R1
1/2 = 0 R1

(binary) $= 110011_2$

0011 0011
3 3

$= 33_{16}$ (Hex)

2. $A1_{16}$

A 1 (binary)
1010 0001 $= 10100001_2$
$2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0$
$(1 \cdot 2^7) + (1 \cdot 2^5) + 1$
$128 + 32 + 1 = 161_{10}$ (decimal)

3. 111111 (binary) This is the maximum value of a 6 digit binary #. 64 possible codes so 0 → 63 ↳(decimal)

4. $0x42_{16}$ = 4 2 (binary)
0100 0010 $= 01000010_2$
$2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0$
$(1 \cdot 2^6) + (1 \cdot 2^1) =$
$64 + 2 = 66_{10}$ (decimal)

Bonus 1. 51_{10} $51/8 = 6$ R 3 ↑ 63_8 (octal)
$6/8 = 0$ R 6 ↑

2. $A1_{16}$ A 1
1010 0001
001 010 001
1 2 1 121_8 (octal)

4. 0x42 4 2
0100 0010
001 000 010
1 0 2 = 102_8 (octal)