**CIS 350 – INFRASTRUCTURE TECHNOLOGIES**

**HOMEWORK # 2**

Group work (maximum 2 students)

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Do not use built-in conversion functions on your calculator! Use back page for calculations if you need. Assume unsigned numbers (≥0).

**Topics**: Number systems and conversion between number bases

Work the following problems:

1. Convert to Binary:

|  |  |  |  |
| --- | --- | --- | --- |
| decimal: (84)10 |  | binary: | 1010100 |
| octal: (562)8 |  | binary: | 101110010 |
| hexa: (CB4)16    2. Convert to Octal: |  | binary: | 110010110100 |
|  |
| decimal: (182)10 |  | octal: | 266 |
| binary: (11111110)2 |  | octal: | 376 |
| hexa: (BF)16    3. Convert to Decimal: |  | octal: | 277 |
|  |
| binary: (11101011)2 |  | decimal: | 235 |
| octal: (535)8 |  | decimal: | 349 |
| hexa: (B2A)16    4. Convert to Hexadecimal: |  | decimal: | 2858 |
|  |
| binary: (110011111100)2 | | hexadecimal: | CFC |
| octal: (476)8 | | hexadecimal: | 13E |
| decimal: (583)10 | | hexadecimal: | 583 |
|  |
| 5. Convert Binary to Decimal, Octal, and Hexadecimal: | | |  |
| binary: (101111.11)2 decimal: | | | 58.8984375 |
| binary: (111010.1110011)2 octal: | | | 72.714 |
| binary: (111010.1110011)2 hexadecimal: | | | 3A.E6 |

1. Convert from Decimal to Hexadecimal. If the answer is irrational, stop at four hexadecimal digits:

decimal: (0.66796875)10 hexadecimal:    0.AB                               

1. How many bits will it take to represent the decimal number 2,050,735? How many bytes will it take to store this number?   
    21 bits, 3 bytes