

## Tutorial Sheet 3 (For Practice)

Convert X in base1 into Y in base2:  $(X)_{\text{base1}} \rightarrow (Y)_{\text{base2}}$

(1056)<sub>16</sub> → ( ? )<sub>10</sub>  
(4182)<sub>10</sub> → ( ? )<sub>8</sub>  
(11672)<sub>8</sub> → ( ? )<sub>10</sub>  
(1001001100)<sub>2</sub> → ( ? )<sub>10</sub>  
(2724)<sub>8</sub> → ( ? )<sub>10</sub>  
(3211)<sub>4</sub> → ( ? )<sub>10</sub>  
(0.ABDF)<sub>16</sub> → ( ? )<sub>10</sub>  
(254.7014)<sub>8</sub> → ( ? )<sub>10</sub>  
(10010.101)<sub>2</sub> → ( ? )<sub>10</sub>  
(254)<sub>8</sub> → ( ? )<sub>10</sub>

Express the following base-10 numbers in BCD format

1. 78            56        37        45        98        36
2. 845           656        357        459        201        451
3. 7845 4656 3057 4050 1254 6589

Given the base-2 numbers: A = 1001010 B = 1110011 C = 000101 D = 10101101

1. Evaluate the following
  1. B + C D + B B + B A + C
  2. A - C C - A B - A B - D
  3. A \* C B \* C D \* C A \* A
  4. A / C D / C A / B D / B
2. Evaluate the two's complement of A, B, C, D

Given the BCD numbers: A = 01000100 B = 10010011 C = 10000101 D = 100100110111

1. Evaluate the following
  1. B + C        D + B            B + B            A + C
  2. A - C        C - A            B - A            D - B

Use the IEEE 754 standard to encode the following decimals

1. 1.1
2. 10.5
3. 0.99875
4. 12325698.125487
5. 0.00012

Decode the following binary numbers, represented in IEEE 754 standard, to decimals

1. 1010100001001100000001010101000101
2. 100110000000101010100010110101000
3. 000100110000001010101010101000101
4. 101010001001100000001010101000101
5. 01000100100101010101011011010101