




Tutorial

CPSC 217



Number conversion (Do it with Pen and Papers)

1. Convert the following base 10 number to binary / base 2:
440 (solution is 110111000)
2. Convert the following base 10 number to base 8:
4543 (solution is 10677)
3. Convert the following base 10 number to base 16:
4543 (solution is 11BF)

Number conversion 1

Decimal to Base 2 (divisor = 2)	
Quotient	Remainder
440	
220	0
110	0
55	0
27	1
13	1
6	1
3	0
1	1
0	1



solution is 110111000

Number conversion 2

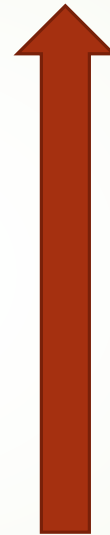
Decimal to Base 8 (divisor = 8)	
Quotient	Remainder
4543	
567	7
70	7
8	6
1	0
0	1




solution is 10677

Number conversion 3

Decimal to Base 16 (divisor = 16)	
Quotient	Remainder
4543	
283	15 → F
17	11 → B
1	1
0	1



solution is 11BF



Number conversion (Do it with Pen and Papers)

1. Convert the following base 2 number to base 10 or decimal:
10111 (solution is 23)
2. Convert the following base 5 number to base 10 or decimal:
23104 (solution is 1654)
3. Convert the following base 16 number to base 10 or decimal:
4ED (solution is 1261)

Number conversion 1

Base 2 to Decimal (Base = 2)		\wedge is the power sign	Column A
Digit position	Digits	Base \wedge position	
0 (LSB)	1	$2^0 = 1$	$1 \times 1 = 1$
1	1	$2^1 = 2$	$1 \times 2 = 2$
2	1	$2^2 = 4$	$1 \times 4 = 4$
3	0	$2^3 = 8$	$0 \times 8 = 0$
4 (MSB)	1	$2^4 = 16$	$1 \times 16 = 16$
Summation of Column A = solution =			23

Number conversion 2

Base 5 to Decimal (Base = 5)		\wedge is the power sign	Column A
Digit position	Digits	Base \wedge position	
0 (LSB)	4	$5^0 = 1$	$4 \times 1 = 4$
1	0	$5^1 = 5$	$0 \times 5 = 0$
2	1	$5^2 = 25$	$1 \times 25 = 25$
3	3	$5^3 = 125$	$3 \times 125 = 375$
4 (MSB)	2	$5^4 = 625$	$2 \times 625 = 1250$
Summation of Column A = solution =			1654

Number conversion 3

Base 16 to Decimal (Base = 16)		\wedge is the power sign	Column A
Digit position	Digits	Base \wedge position	
0 (LSB)	D \rightarrow 13	$16^0 = 1$	$13 \times 1 = 13$
1	E \rightarrow 14	$16^1 = 16$	$14 \times 16 = 224$
2 (MSB)	4	$16^2 = 256$	$4 \times 256 = 1024$
Summation of Column A = solution =			1261



My PPT slides

- You can find my created PPT slides at the following link:

<https://sites.google.com/site/samicsemist/cpsc217win16>