$123|_7 = ?|_9$

$66|_{10} = ?|_9$

49 7 1
$123|_7$

$3 \times 1 = 3$
$2 \times 7 = 14$
$1 \times 49 = 49$

$66|_{10}$

$123|_7 = 73|_9$

$9|66$
$9|7$ R3
0 R7 ↑

$66|_{10} = 73|_9$

Trick To convert 16, 8, 4 → 2

2 → 4, 8, 16

(8) octal	(2) Binary
0	000
1	001
2	010
3	011
4	100
5	101
6	110
7	111

$76541|_8 = ?|_2$

111 110 101 100 001

WRONG WAY

$101|101|111|0|_2 = ?|_8$

5 5 7 0

RIGHT WAY

001|101|101|110

1 3 3 6

$1011011110|_2 = 1336|_8$

$A1B2|_{16} = ?|_8$

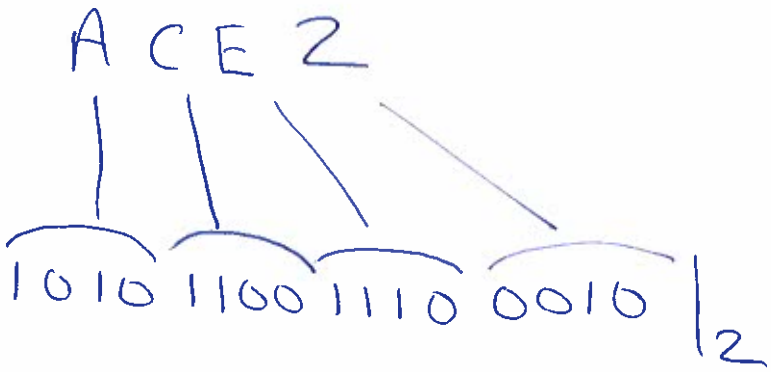
$001|010|000|110|110|010$

$1 \quad 2 \quad 0 \quad 6 \quad 6 \quad 2$

$= 120662|_8$

Hex	Binary
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010
B	1011
C	1100
D	1101
E	1110
F	1111

$ACE2|_{16} = ?|_2$



1/28/19 (5)

"1100 1001"

C9

10011101 9D

Counting in other bases

count Base 4

0, 1, 2, 3, 10, 11, 12, 13, 20, 21

22, 23, 30, 31, 32, 33, 100, 101, · –

102, 103, 110

bitwise logical functions (operations)

In a bitwise operation, each bit position is independently computed (no carry/borrow)

AND

← and operator

A	B	A & B
0	0	0
0	1	0
1	0	0
1	1	1

```
  10110110
& 01101100
----------
  00100100
```

```
  F0 → 1111 0000
& A5 → 1010 0101
-----------------
  A0 ← 1010 0000
```