Natnael "Nate" Haile

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Conversions >H g4rftbhn2de3c

Binary → Decimal

- go right "←" to left of binary # and the "1's" are "on" and add

$\overset{2\ 1\ 0}{101} = 1+4 = 5$

$\overset{2\ 1\ 0}{111} = 1+2+4 = 7$

$\overset{6\ 5\ 4\ 3\ 2\ 1\ 0}{100101} = 1+4+32 = 37$

Decimal → Binary

- Divide by 2 until you get to 0 and any remainder discard and turn to 1

Practice numbers w/

$5/2 = 2/2 = 1/2$

1 0 1

$= 101$ ←

$37/2 = 18/2 = 9/2 = 4/2 = 2/2 = 1/2$

1 0 1 0 0 1

←

100101

Hex → Decimal

Calculate the power of hex and add exponents from right starting at 0 to left.

$1DF = 1\cdot16^2 + 13\cdot16^1 + 15\cdot16^0$

$256 + 208 + 15$

479

Exponents Table

		Hex	
$2^0 = 1$		1	$16^0 = 1$
$2^1 = 2$		2	$16^1 = 16$
$2^2 = 4$		3	$16^2 = 256$
$2^3 = 8$		4	$16^3 = 4096$
$2^4 = 16$		5	$16^4 = 65536$
$2^5 = 32$		6	$16^5 = 1048576$
$2^6 = 64$		7	$16^6 = 16777216$
$2^7 = 128$		8	
$2^8 = 256$		9	
$2^9 = 512$		A	
$2^{10} = 1024$		B	
		C	
		D	
		E	
		F	

Logarithmic Conversions

"what to the power"

$\log_2 4 = 2^x = 4 = 2$

$\log_3 9 = 3^x = 9 = 2$

$\log_2 32 = 2^x = 32 = 5$

Decimal → Hex

$16 \overset{4}{\overline{)76}}$ -64 12

$16 \overset{0}{\overline{)4}}$ 4

←

4C

$16 \overset{3}{\overline{)50}}$ -48 2

$16 \overset{0}{\overline{)3}}$ 3

←

32