

Dec	Bin	Hex (base 16)
0	0000	0
1	0001	1
2	0010	2
3	0011	3
4	0100	4
5	0101	5
6	0110	6
7	0111	7
8	1000	8
9	1001	9
10	1010	A
11	1011	B
12	1100	C
13	1101	D
14	1110	E
15	1111	F
16	10000	10

Numbering Systems and Computer Codes - Mozilla Firefox

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http://www.pgrocer.net/Cis17/notes/numbers.html

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A 3 5 9 face value

16^3 16^2 16^1 16^0 positional value (powers of 16)

4096 256 16 1 resolved positional value

Converting hexadecimal to decimal:

To convert hexadecimal to its decimal equivalent, we multiply the face value times the positional value:

A x 16^3 =	10 x 4096 =	40960 (note A is equivalent to decimal 10)
3 x 16^2 =	3 x 256 =	768
5 x 16^1 =	5 x 16 =	80
9 x 16^0 =	9 x 1 =	9
		—————
		41817

The equivalent of hexadecimal A359 in decimal is 41817.

Converting decimal to hexadecimal:

Now we will take the decimal number 41817 and convert it back to hexadecimal. To do this, we will follow the same steps we used in converting decimal to binary with one change. This time we are concerned with multiplying by the face value (in binary this was not a concern because multiplying by 1 doesn't change anything).

The following are the decimal equivalents for some of the commonly used powers of 16:

$16^0 = 1$ $16^1 = 16$ $16^2 = 256$ $16^3 = 4096$ $16^4 = 65536$

The following steps convert decimal 41817 to hexadecimal:

1. First we need to find out the highest base of 16 that can be subtracted from our number. 41817. Clearly 16 to the 4th which is equivalent to 65536 is too big.

Done

start Numbering Systems a... Untitled * - SMART N... Ascii Table - ASCII ch... 10:10

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the letter D carries the same value as decimal 13, the letter E carries the same value as decimal 14, and the letter F carries the same value as decimal 15. Hexadecimal, like any other numbering system has the face value of digits and the positional value. The positional value is based on the powers of 16 since hexadecimal is the base 16 numbering system.

Example: Hexadecimal number A359

A	3	5	9	face value
16^3	16^2	16^1	16^0	positional value (powers of 16)
4096	256	16	1	resolved positional value

Converting hexadecimal to decimal:

To convert hexadecimal to its decimal equivalent, we multiply the face value times the positional value:

$A \times 16^3 =$	$10 \times 4096 =$	40960 (note A is equivalent to decimal 10)
$3 \times 16^2 =$	$3 \times 256 =$	768
$5 \times 16^1 =$	$5 \times 16 =$	80
$9 \times 16^0 =$	$9 \times 1 =$	9
		—————
		41817

The equivalent of hexadecimal A359 in decimal is 41817.

Converting decimal to hexadecimal:

Now we will take the decimal number 41817 and convert it back to hexadecimal. To do this, we will follow the same steps we used in converting decimal to binary with one change. This time we are concerned with multiplying by the face value (in binary this was not a concern because multiplying by 1 doesn't change anything).

The following are the decimal equivalents for some of the commonly used powers of 16:

Done

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$$B4C2_{16} = \underline{46274}_{10}$$

$$\begin{array}{cccc} 16^3 & 16^2 & 16^1 & 16^0 \\ 4096 & 256 & 16 & 1 \end{array}$$

$$\begin{array}{r} 256 \\ + 4 \\ \hline 1024 \end{array}$$

$$\begin{array}{r} 4096 \\ 4096 \\ \hline 15056 \end{array}$$

$$B \times 16^3 = 11 \times 4096 = 45056$$

$$4 \times 16^2 = 4 \times 256 = 1024$$

$$C \times 16^1 = 12 \times 16 = 192$$

$$2 \times 16^0 = 2 \times 1 = 2$$

$$\underline{46274}$$

$$46274_{10} = \underline{\underline{B4C2}}_{16}$$

11						46274
B	4	C	2	10^x	-	40960
<u>16³</u>	<u>16²</u>	<u>16¹</u>	<u>16⁰</u>			<u>5314</u>
16	4096	256	16	1	1×4096	- 4096
12					4×256	<u>1218</u>
<u>192</u>						- 1024
						<u>194</u>
						<u>192</u>
						2

←

Chart to use when working with ASCII code

800 Diet ASCII

Ascii Table - ASCII character codes and html, octal, hex and decimal chart conversion - Windows Internet Explorer

http://www.asciitable.com/

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Ascii Table - ASCII character codes and html, octal, h...

characters are rarely used for their original purpose. Below is the ASCII character table and this includes descriptions of the first 32 non-printing characters. ASCII was actually designed for use with teletypes and so the descriptions are somewhat obscure. If someone says they want your CV however in ASCII format, all this means is they want 'plain' text with no formatting such as tabs, bold or underscoring - the raw format that any computer can understand. This is usually so they can easily import the file into their own applications without issues. Notepad.exe creates ASCII text, or in MS Word you can save a file as 'text only'

Dec	Hx	Oct	Char	Dec	Hx	Oct	Html	Chr	Dec	Hx	Oct	Html	Chr	Dec	Hx	Oct	Html	Chr
0	0	000	NUL (null)	32	20	040	 	Space	64	40	100	@	@	96	60	140	`	`
1	001		SOH (start of heading)	33	21	041	!	!	65	41	101	A	A	97	61	141	a	a
2	2	002	STX (start of text)	34	22	042	"	"	66	42	102	B	B	98	62	142	b	b
3	3	003	ETX (end of text)	35	23	043	#	#	67	43	103	C	C	99	63	143	c	c
4	4	004	EOF (end of transmission)	36	24	044	$	\$	68	44	104	D	D	100	64	144	d	d
5	5	005	ENQ (enquiry)	37	25	045	%	%	69	45	105	E	E	101	65	145	e	e
6	6	006	ACK (acknowledge)	38	26	046	&	&	70	46	106	F	F	102	66	146	f	f
7	7	007	BEL (bell)	39	27	047	'	'	71	47	107	G	G	103	67	147	g	g
8	8	010	BS (backspace)	40	28	050	((72	48	110	H	H	104	68	150	h	h
9	9	011	TAB (horizontal tab)	41	29	051))	73	49	111	I	I	105	69	151	i	i
10	A	012	LF (NL line feed, new line)	42	2A	052	*	*	74	4A	112	J	J	106	6A	152	j	j
11	B	013	VT (vertical tab)	43	2B	053	+	+	75	4B	113	K	K	107	6B	153	k	k
12	C	014	FF (NP form feed, new page)	44	2C	054	,	,	76	4C	114	L	L	108	6C	154	l	l
13	D	015	CR (carriage return)	45	2D	055	-	-	77	4D	115	M	M	109	6D	155	m	m
14	E	016	SO (shift out)	46	2E	056	.	.	78	4E	116	N	N	110	6E	156	n	n
15	F	017	SI (shift in)	47	2F	057	/	/	79	4F	117	O	O	111	6F	157	o	o
16	10	020	DLE (data link escape)	48	30	060	0	0	80	50	120	P	P	112	70	160	p	p
17	11	021	DC1 (device control 1)	49	31	061	1	1	81	51	121	Q	Q	113	71	161	q	q
18	12	022	DC2 (device control 2)	50	32	062	2	2	82	52	122	R	R	114	72	162	r	r
19	13	023	DC3 (device control 3)	51	33	063	3	3	83	53	123	S	S	115	73	163	s	s
20	14	024	DC4 (device control 4)	52	34	064	4	4	84	54	124	T	T	116	74	164	t	t
21	15	025	NAK (negative acknowledge)	53	35	065	5	5	85	55	125	U	U	117	75	165	u	u
22	16	026	SYN (synchronous idle)	54	36	066	6	6	86	56	126	V	V	118	76	166	v	v
23	17	027	ETB (end of trans. block)	55	37	067	7	7	87	57	127	W	W	119	77	167	w	w
24	18	030	CAN (cancel)	56	38	070	8	8	88	58	130	X	X	120	78	170	x	x
25	19	031	EM (end of medium)	57	39	071	9	9	89	59	131	Y	Y	121	79	171	y	y
26	1A	032	SUB (substitute)	58	3A	072	:	:	90	5A	132	Z	Z	122	7A	172	z	z
27	1B	033	ESC (escape)	59	3B	073	;	;	91	5B	133	[[123	7B	173	{	{
28	1C	034	FS (file separator)	60	3C	074	<	<	92	5C	134	\	\	124	7C	174	|	
29	1D	035	GS (group separator)	61	3D	075	=	=	93	5D	135]]	125	7D	175	}	}
30	1E	036	RS (record separator)	62	3E	076	>	>	94	5E	136	^	^	126	7E	176	~	~
31	1F	037	US (unit separator)	63	3F	077	?	?	95	5F	137	_	_	127	7F	177		DEL

Source: www.LookupTables.com

red

Start Stop

How good are you with a mouse? Test yourself here - from the time you start ticking the boxes you have 20 seconds to tick as many as you can. Click restart to clear the boxes and try again. Good luck!

0

restart

start Numbering Systems a... Untitled * - SMART N... Ascii Table - ASCII ch... 10:26

	hex		ASCII
A	41	01000001	
B	42	01000010	
C	43	01000011	
H	4A	01001010	$\overline{8} \overline{4} \overline{2} \overline{1}$
O	4F	01001111	
P	50	01010000	
X	5A	01011010	

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 resp

Looking at the code for upper and lower case and numbers.

A	41	01000001
a	61	01100001
B	42	01000010
b	62	01100010
Z	5A	01011010
z	7A	01111010
0	30	00110600
1	31	00110001
9	39	00111001

Character

F

U

ASCII

01000110

01010101

hexadecimal

4

6

5

5

N

01001110

4

E

7

00110111

3

7