Digital Storage – Binary and ASCII

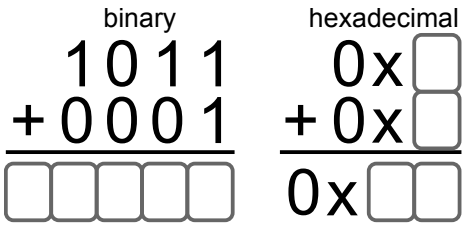
Data Storage – Binary

1. Complete the table, below.

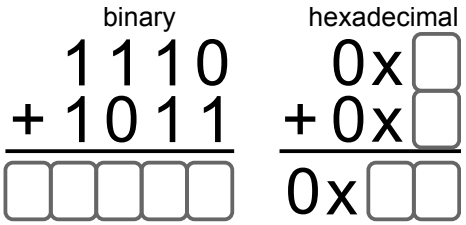
Decimal	Octal	hexadecimal	binary
0			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

2. Complete the binary addition, then convert each line into hexadecimal.

a)

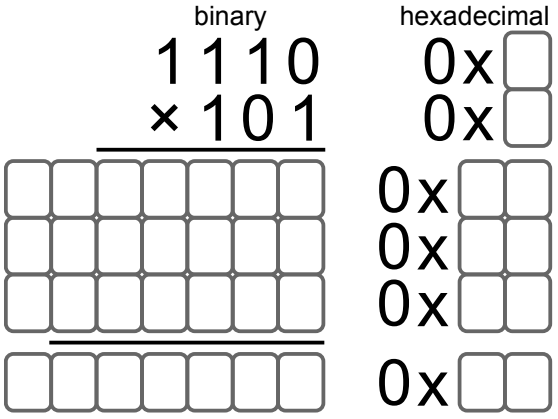


b)

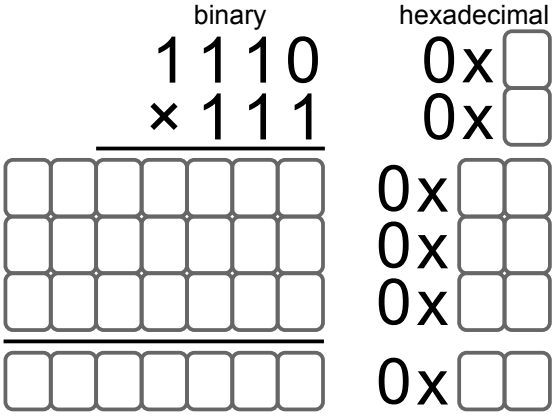


3. Complete the binary multiplication, then convert each line into hexadecimal.

a)



b)



Digital Storage – Binary and ASCII

Data Storage – ASCII Characters

4. Convert the binary into hexadecimal, then use the table to convert to characters.

Binary	Hex	ASCII
01000100		
01101111		
01101110		
00100111		
01110100		
00100000		
01100011		
01101111		
01110000		
01111001		
00100001		

ASCII Character Set (0x20-0x7F)

hex	char	hex	char	hex	char	hex	char	hex	char	hex	char
20	*space*	30	0	40	@	50	P	60	`	70	p
21	!	31	1	41	A	51	Q	61	a	71	q
22	“	32	2	42	B	52	R	62	b	72	r
23	#	33	3	43	C	53	S	63	c	73	s
24	$	34	4	44	D	54	T	64	d	74	t
25	%	35	5	45	E	55	U	65	e	75	u
26	&	36	6	46	F	56	V	66	f	76	v
27	'	37	7	47	G	57	W	67	g	77	w
28	(	38	8	48	H	58	X	68	h	78	x
29	)	39	9	49	I	59	Y	69	i	79	y
2A	*	3A	:	4A	J	5A	Z	6A	j	7A	z
2B	+	3B	;	4B	K	5B	[	6B	k	7B	{
2C	,	3C	<	4C	L	5C	\	6C	l	7C	|
2D	-	3D	=	4D	M	5D	]	6D	m	7D	}
2E	.	3E	>	4E	N	5E	^	6E	n	7E	~
2F	/	3F	?	4F	O	5F	_	6F	o	7F	*delete*

5. Using the ASCII table, above, convert each character of the string “Hello Chris!” to hexadecimal, then to binary.

ASCII	hex	binary
H		
e		
l		
l		
o		
space		

ASCII	hex	binary
C		
h		
r		
i		
s		
!		

6. Write your Chinese name using pinyin, then convert each character to hexadecimal then binary.

Pinyin

Hexadecimal

Binary

1		6		B	
2		7		C	
3		8		D	
4		9		E	
5		A		F	