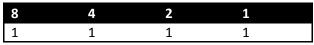
R 43

Hexadecimal and Binary Conversions - Reading

The letter F in hexadecimal represents the number 15. In binary this is represented as 1111₂:



(8+4+2+1=15)

4 digits of binary perfectly represent 1 digit of hexadecimal. This makes converting between the two number systems really easy. It also means that 1 digit of hexadecimal can be stored in 1 nibble (4 bits) and 2 digits of hexadecimal can be stored in 1 byte (8 bits).

Hexadecimal to binary conversions

Question: Convert the number $4A_{16}$ to binary

- 1. Convert each digit to decimal numbers: 4, 10
- 2. Convert each of the digits of hexadecimal to 4 digits of binary:

		4				10 (A)		
8	4	2	1	8	4	2	1	
0	1	0	0	1	0	1	0	

Answer: 0100 1010₂

Question: Convert the number F34A₁₆ to binary

	1	5 (F)				3				4			1	0 (A)	
8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
1	1	1	1	0	0	1	1	0	1	0	0	1	0	1	0

Answer: 1111 0011 0100 10102

Binary to hexadecimal conversions

Question: Convert 1011 1010₂ to hexadecimal

1. Draw out the table and put in the binary digits

8	4	2	1	8	4	2	1	
1	0	1	1	1	0	1	0	

2. Convert each 4 binary digits to hexadecimal

	8+2+1 =	= 11 = B			8+2 = 2	10 = A		
8	4	2	1	8	4	2	1	
1	0	1	1	1	0	1	0	

Answer: BA₁₆