AQA Computer Science GCSE

3.3.2 Converting Between Number Bases

Flashcards

What is base conversion?

What is base conversion?

Changing a number from one number system to another (binary, decimal, or hexadecimal).

How do you convert decimal to binary?

How do you convert decimal to binary?

1. Write out place value headers, starting with one and increasing in powers of two, placing larger values to the left of smaller values.
2. Starting from the left hand side, you place a one if the value is less than or equal to your number, and a zero otherwise.
3. Once you've placed a one, you must subtract the value of that position from your number and continue as before, until your number becomes 0.

What is the 8-bit binary equivalent of the decimal number 13?

What is the 8-bit binary equivalent of the decimal number 13?

00001101

How do you convert binary to decimal?

How do you convert binary to decimal?

1. Write out place value headers, starting with one and increasing in powers of two, placing larger values to the left of smaller values.
2. Align the left of the binary number with the place value headers.
3. Add together all of the place values with a binary 1 beneath them.

What is the decimal equivalent of the binary number 1010?

What is the decimal equivalent of the binary number 1010?

8 (2^3)	4 (2^2)	2 (2^1)	1 (2^0)
1	0	1	0

$$8 + 0 + 2 + 0 = 10$$

How do you convert binary to hexadecimal?

How do you convert binary to hexadecimal?

- Split the 8-bit binary value into two 4-bit nibbles and convert each to decimal.
- Once each nibble has been converted to decimal, the decimal value can be converted to its hexadecimal equivalent (0-9 remain the same, A=10, B=11 ...)
- Finally, the hexadecimal digits are concatenated to form a hexadecimal representation.

What is the decimal equivalent of the binary number 11011111?

What is the decimal equivalent of the binary number 11011111?

1101 1111 → D F

How do you convert hexadecimal to binary?

How do you convert hexadecimal to binary?

Convert each hexadecimal digit to a decimal digit and then to a binary nibble before combining the nibbles to form a single binary number.

What is the binary equivalent of the hexadecimal number A7?

What is the binary equivalent of the hexadecimal number A7?

10100111 (A=1010, 7=0111)

How do you convert decimal to hexadecimal?

How do you convert decimal to hexadecimal?

1. Convert the decimal number into binary
2. Convert this binary number to hexadecimal

What is the hexadecimal equivalent of the decimal number 254?

What is the hexadecimal equivalent of the decimal number 254?

FE

How do you convert hexadecimal to decimal?

How do you convert hexadecimal to decimal?

1. Begin by converting the hexadecimal number into binary
2. Convert this binary number to decimal.

What is the decimal equivalent of the hexadecimal number 2F?

What is the decimal equivalent of the hexadecimal number 2F?

$(2 \times 16) + 15 = 47$

What is the binary value of hex F?

What is the binary value of hex F?

1111