AQA Computer Science GCSE

3.3.6 Representing Images

Flashcards

What is a pixel?

What is a pixel?

Short for “picture element” - a single point in an image.

How are images represented in a computer?

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As a grid of pixels, with each pixel's colour value stored in binary.

What is colour depth?

What is colour depth?

The number of bits used to represent each pixel.

How many unique colours can be represented by 1-bit colour depth?

How many colours can 1-bit colour depth represent?

2^1 = 2 colours (typically black and white)

How many unique colours can be represented by 8-bit colour depth?

How many unique colours can be represented by 8-bit colour depth?

$2^8 = 256$ colours

What happens to an image's file size if colour depth increases?

What happens to an image's file size if colour depth increases?

File size increases, as more bits per pixel = more data.

What happens to an image's quality if colour depth increases?

What happens to an image's quality if colour depth increases?

Quality improves, as a wider range of colours can be represented.

What is the formula for calculating bitmap file size (in bits)?

What is the formula for calculating bitmap file size (in bits)?

File size = width × height × colour depth

How do you convert bits to bytes?

How do you convert bits to bytes?

Divide by 8

Calculate the file size of a 200 × 100 image with 8-bit colour depth in bytes.

Calculate the file size of a 200 × 100 image with 8-bit colour depth in bytes.

200 × 100 × 8 = 160,000 bits / 8 =

20,000 bytes

What are the three factors that affect bitmap image file size?

What are the three factors that affect bitmap image file size?

Width, height and colour depth