

24 bit

16,777,216 colors

8 bit

256 colors

4 bit

16 colors

2 bit

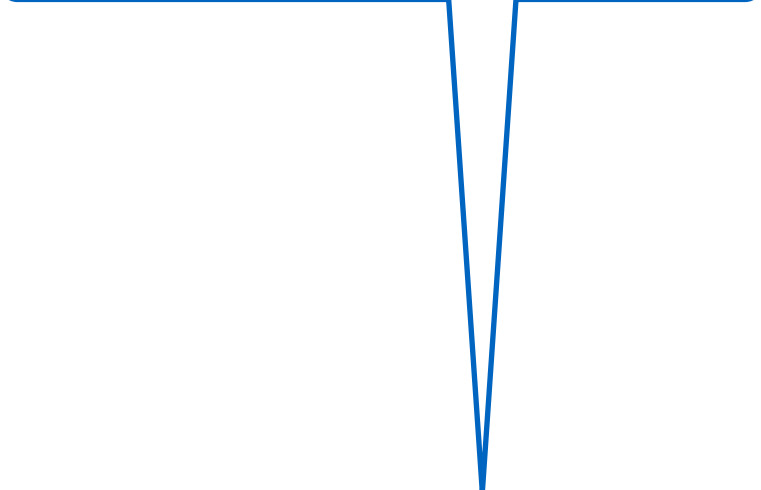
4 colors

1 bit

2 colors

Wouldn't you agree that more names, i.e., bits per pixel, gets you better image quality?

You pay a price for that quality: it takes WAY more total bits to remember the image!

A blue speech bubble with a rectangular top and a pointed bottom, pointing downwards towards the bottom center of the image.

Here's another example:

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For an image of 320×200 pixels = 64000 pixels at
24 bits per pixel = 1,536,000 bits to remember the image!

So with 24-bit names for pixels, we can have $2^{24}=16,777,216$ different names, i.e., that many different colors.