Sound file size

Q. Eight minutes of sound has been digitally recorded. The sampling rate used was 25 000 Hertz and the sample resolution used was 4 bits.

Calculate the minimum file size for the recording. Give your answer in megabytes.

You should show your working.

[4 marks]

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[4 marks]

Representing sound

Sampling rate: how many times a second a sample is taken

Sample resolution: the number of bits used to store each sample

file size = rate x resolution x seconds

Representing sound

file size = rate x resolution x seconds

A 3 minute (180 secs) audio file using 16 bit sampling resolution at 44.1kHz sampling rate.

file size (bits) = 44,100 x 16 x 180

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[4 marks]

8 mins = 8 x 60 secs = 480 secs

size = time x sample rate x sample res

= 480 x 25 000 x 4

= 480 x 100 000

= 48 000 000 bits

(= 6 000 000 Bytes = 6 MegaBytes)