digital answering machine:

a sampling rate of 12 KH_z

a quantization of 8 bits

☆ Question: How much memory (MB) is required to store 20 minutes of conversation? What size memory chip is appropriate?

Solution: N = total number of samples = $12\,KH_z \times 20\,min \times 60s$

$= 12 \times 10^3 \times 20 \times 60$

$= 1.44 \times 10^7$

total number of bits: $8 * N = 8 \times 1.44 \times 10^7 = 1.152 \times 10^8$

8 bits = 1 byte, $1.152 \times 10^8 / 8 = 1.44 \times 10^7$ (B)

1.44×10^7 byte = 144×10^5 byte = ~~=144~~ ~~144~~ 144×10^2 KB = 14.4 MB

needed a 16 MB memory chip

☆ Question:

1. Zip every voice file so that less chips are needed
2. buy several big chips ~~instead~~ instead of many small one.
3. choose different brands or companies' chips which is cheaper.