

1. Read the text, solve the activities below and write it in appropriate Spanish

Electronic music is usually made using a computer, by synthesizing or processing *digital audio signals*. These are sequences of numbers,

$$\dots, x[n - 1], x[n], x[n + 1], \dots$$

where the index n , called the *sample number*, may range over some or all the integers. A single number in the sequence is called a *sample*. An example of a digital audio signal is the *Sinusoid*:

$$x[n] = a \cos(\omega n + \phi)$$

where a is the *amplitude*, ω is the *angular frequency*, and ϕ is the initial *phase*. The phase is a function of the sample number n , equal to $\omega n + \phi$. The initial phase is the phase at the zeroth sample ($n = 0$).

Figure 1.1 (part a) shows a sinusoid graphically. The horizontal axis shows successive values of n and the vertical axis shows the corresponding values of $x[n]$. The graph is drawn in such a way as to emphasize the sampled nature of the signal. Alternatively, we could draw it more simply as a continuous curve (part b). The upper drawing is the most faithful representation of the (digital audio) sinusoid, whereas the lower one can be considered an idealization of it.

Sinusoids play a key role in audio processing because, if you shift one of them left or right by any number of samples, you get another one. This makes it easy to calculate the effect of all sorts of operations on sinusoids. Our ears use this same special property to help us parse incoming sounds, which is why sinusoids, and combinations of sinusoids, can be used to achieve many musical effects.

a. Write the references for:

It:

It:

This:.....

Us:.....

b. Write the function of:

Or:.....

Whereas:.....

Beacuse:.....

c. Explain the function of the following modal verbs in the sentences they appear:

May:.....

Could:.....

Can:

2. Read and complete the blanks with a word from the list. Then, write in appropriate Spanish what you understand.

developed - highlighted - to visualize - will group - can observe - experiment

Although we have [] the *amplitude vs. time* and the *frequency vs. time* representations, bear in mind that these are not the only ways [] sound, and indeed there have been all kinds of innovative ways [] by artists and scientists (or creative technologists) to allow us to 'see' sound. One of these, for instance, is **cymatics**. In cymatics, you place a shallow container with a fluid (like water or anything else you might want to [] with) on top of a speaker and when the sound plays back you [] intricate patterns formed by rippling on its surface. This can also be done with a metal plate covered in sand. The particles [] on the surface of the plate to form patterns as the sound changes.