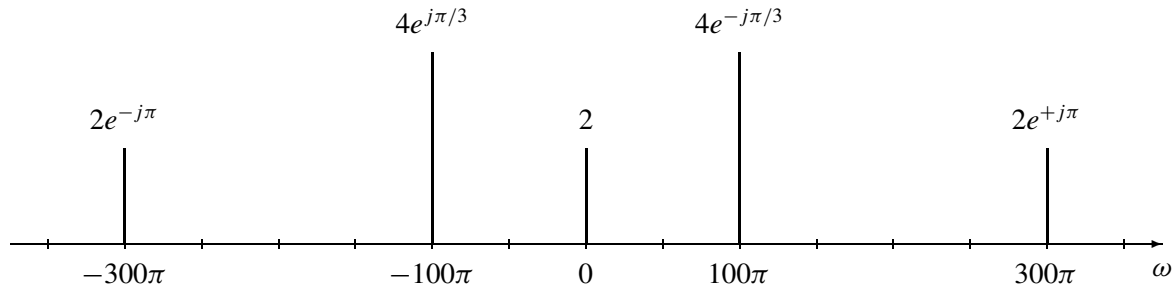## PROBLEM:

The spectrum of a signal $x(t)$ is shown in the following figure:

(a) Write an equation for $x(t)$ in terms of cosine functions.

(b) Is $x(t)$ periodic? **You must explain this answer. Why or why not?**
   If it is periodic, what is the fundamental frequency and corresponding period of $x(t)$?

(c) A new signal is defined as $y(t) = \cos(\alpha t + \pi) + x(t)$. It is known that $y(t)$ is periodic with period $T_0 = 0.04$ sec. Determine **two** positive values for the frequency α that will satisfy this condition.

(d) Using either of the frequencies α found in (c), modify the spectrum plot above so that it becomes the spectrum of $y(t)$.