PROBLEM:

A periodic signal is represented by the Fourier Series synthesis formula:

$$x(t) = \sum_{k=-\infty}^{\infty} a_k \, e^{j2400\pi kt} \qquad \text{where} \quad a_k = \begin{cases} \dfrac{1}{4+j2k} & \text{for } k = -3, -2, -1, 0, 1, 2, 3 \\[2mm] 0 & \text{for } |k| > 3 \end{cases}$$

(a) Determine a formula for the signal $x(t)$ and a sum of sinusoids, using the cosine form.

(b) Determine the minimum sampling rate f_s (in Hz) such that $x(t)$ can be reconstructed from its samples, $x(n/f_s)$.