$$M\ddot{\theta}(t) + C\dot{\theta}(t) + K\theta(t) = \frac{A_0}{2} + \sum_{n=1}^{24} \sqrt{a_n^2 + b_n^2}\ \sin(n\omega t + \phi_n)$$

where $M, C, K, A_0, \sqrt{a_n^2 + b_n^2}, \phi_n$ are known quantities