Problem: Let \( y = f(t) \) describe the vertical motion of a weight suspended from a spring, where \( y \) is measured in centimeters and \( t \) is measured in seconds. After some observation of this system, you find:

\[
f(t) = 2\sin(\pi t - 4\pi) + 3.
\]

Questions:

1. What is the amplitude, period, phase shift, and mean for \( y = f(t) \)?
2. Sketch $y = f(t)$ in the “window” below:
3. Find the general principal and general symmetric solutions for $f(t) = 2\text{cm}$. Indicate on your sketch where these solutions are located for $k = -1$, $0$, and $+1$. 
4. Within the interval \(0 \leq t \leq 5\text{sec}\), what is the total time where the mass is at or above \(y = 2\text{cm}\)?