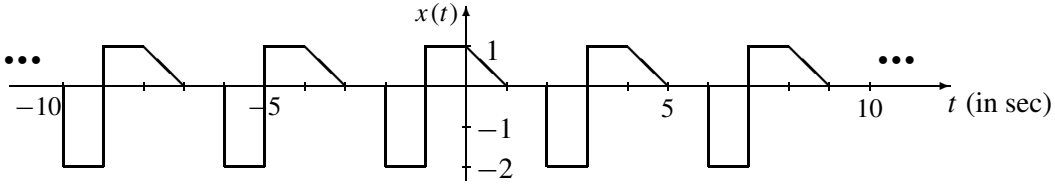
**PROBLEM:**

Suppose that a periodic signal $x(t)$ is defined as follows:




(a) Determine the DC value of $x(t)$.

(b) Is $x(t)$ bandlimited? If so, give the maximum frequency. If not, explain why.

(c) Does $x(t)$ have a fundamental frequency? If so, give the frequency. If not, explain why.

(d) Determine the instantaneous frequency $\omega_i(t)$ at times $t = 1.5$ and $t = -0.6$ seconds? *This is easy, just think carefully.*

(e) Write the Fourier integral expression for the coefficient $a_3$ in terms of the specific signal $x(t)$ defined above. *Set up all the specifics of the integral (e.g., limits of integration), but do not evaluate the integral. All parameters in the integral should have numeric values.*