Consider the discrete-time signal \( x(n) = 1 + \cos(4\pi n / 9) \) where \( n \in \text{Integers} \).

1. Find the period \( p \), where \( p > 0 \).
   
   The period is \( p = 9 \), or any integer multiple of 9.

2. Give the fundamental frequency corresponding to the period in (1). Give the units.
   
   With \( p = 9 \), the fundamental frequency is \( f_0 = 1/9 \) cycles/sample, or \( \omega_0 = 2\pi/9 \) radians/sample.

3. Give the coefficients \( A_0, A_1, A_2, \ldots \) and \( \phi_1, \phi_2, \ldots \) of the Fourier series expansion for this signal.
   
   With \( p = 9 \) we get \( A_0 = A_2 = 1 \), while all other \( A_i \) are 0. \( \phi_2 = 0 \), and all other \( \phi_i \) are arbitrary.