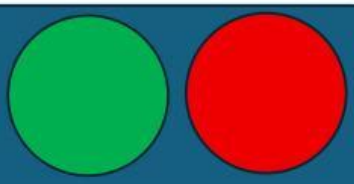
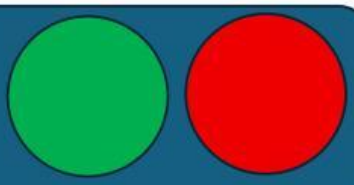
Fourier Series

Determine whether the statements is True or False. (choose either True (Green) or False (Red).

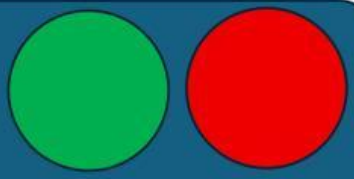
The Fourier series of an even function contains only cosine terms.



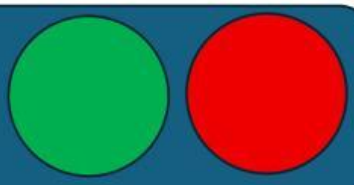
For any periodic function, its Fourier series always contains both sine and cosine terms, regardless of symmetry.



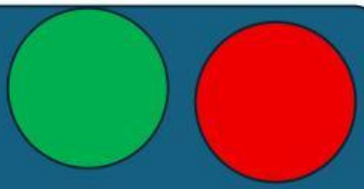
The product of two odd functions is an even function.



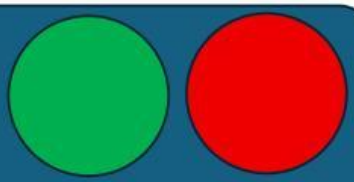
The integral of an odd function over a symmetric interval $[-L, L]$is zero.



The cosine Fourier coefficients $a_n$are computed using the integral of $f(x)\cos(nx)$.The Fourier series of an even function contains only cosine terms.



If a function is neither even nor odd, its Fourier series will contain both sine and cosine terms.



The sine terms in a Fourier series represent the even component of the function.