

```

function fseries = fourier_series(fcoeff,x,T(
%
%Calculate the Fourier series expansion, given the coefficients
%
%
%USAGE
-----%
%fseries = fourier_series(fcoeff,x,T(
%
%
%INPUT
-----%
- %FCOEFF: Fourier coefficients in the form [a0 a1 ... aM b1 ... bM[
- %X   : independent variable (Nx1 vector(
- %T   : period of the function (scalar(
%
%
%OUTPUT
-----%
% $f(t) = a_0 + \sum_{m=1}^M \{ a_m \cos(2\pi m t/T) + b_m \sin(2\pi m t/T) \}$  (
%
%
%See also FOURIER_COEFF

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N = length(x;(

```

```
M = (length(fcoeff)-1)/2;
w0 = 2*pi/T;
series = zeros(N,2*M+1);
series(:,1) = 1;
for m=2:M+1
    series(:,m) = cos(w0*(m-1)*x);
    series(:,m+M) = sin(w0*(m-1)*x);
end
fseries = series*reshape(fcoeff,2*M+1,1);
```