

EE*Pack: Fourier Series Coefficients Program

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1. To find Fourier coefficients of a function of one interval, write:
fourcoef(function,start,end,number)

Example:

Find the first four coefficients of Fourier Series of function

$$f(t) = |t| \quad \text{if } -\pi < t < \pi$$

Write the command and ask for the coefficients.

F1	F2	F3	F4	F5	F6
Tools	Algebra	Calc	Other	Pr3mID	Clean Up
■ fourcoef(t , -π, π, 4)					
					Done
■ a0					π
■ a1					-1.273
■ b1					0.
SCS RAD AUTO FUNC 4/50					

Coefficients are stored in variables a0, a1, b1, a2, b2, a3, b3, a4 & b4.

2. To find Fourier coefficients of a function of two intervals, write:
fourcoe2(function1,start1,end1,function2,start2,end2,number)

Example:

Find the first six coefficients of Fourier Series of function

$$f(t) = +1 \quad \text{if } 0 < t < \pi$$

$$f(t) = -1 \quad \text{if } \pi < t < 2\pi$$

Write the command.

F1	F2	F3	F4	F5	F6
Tools	Algebra	Calc	Other	Pr3mID	Clean Up
■ fourcoe2(1, 0, π, -1, π, 2*π, 6)					
					Done
urcoe2(1,0,π,-1,π,2*π,6)					
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Ask for the coefficients.

F1	F2	F3	F4	F5	F6
Tools	Algebra	Calc	Other	Pr3mID	Clean Up
■ b1					
					$\frac{4}{\pi}$
■ b3					
					$\frac{4}{3 \cdot \pi}$
■ b5					
					$\frac{4}{5 \cdot \pi}$
b5					
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Coefficients are stored in variables a0, a1, b1, a2, b2, a3, b3, a4, b4, a5, b5, a6 & b6.

This software is part of the EE*Pack.
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