2. Practice with finding Fourier series

Manipulating series

1/1 point (graded)

Use the fact that the triangle wave of period 2π defined by

$$g(u) = |u|, \qquad -\pi \leq u \leq \pi$$

has Fourier series

$$g(u) = \pi/2 - \frac{4}{\pi}\left(\cos u + \frac{\cos 3u}{3^2} + \frac{\cos 5u}{5^2} + \cdots\right)$$

to find the Fourier series of the even function of period 2 defined on the interval $0 \leq t \leq 1$ by

$$f(t) = 2t - 1 \qquad 0 \le t \le 1.$$

(Express as a function of g and the variable t. Type **g(2*t)** for the function $g(2t)$.)

(2/pi)*g(pi*t)-1 ✔

Submit

✔ Correct (1/1 point)

Enter the series

1/1 point (graded)

Find the Fourier series of the even function of period 2 defined on the interval $0 \le t \le 1$ by

$$f(t) = 2t - 1 \qquad 0 \le t \le 1.$$

(Enter the first three nonzero terms.)

-8/pi^2*cos(pi*t)-8/(9*pi^2)*cos(3*pi*t)-8/(25*pi^2)*cos(5*pi*t) ✔

$$-\frac{8}{\pi^2}\cdot\cos(\pi\cdot t) - \frac{8}{9\cdot\pi^2}\cdot\cos(3\cdot\pi\cdot t) - \frac{8}{25\cdot\pi^2}\cdot\cos(5\cdot\pi\cdot t)$$

Submit

✔ Correct (1/1 point)

2. Practice with finding Fourier series

Topic: Unit 1: Fourier Series / 2. Practice with finding Fourier series

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This is funny		4
What about B0?	In the second answer, what about the (non-zero) constant terms?	2
is the grader for "Enter the series" correct?	I'm pretty sure my solution is correct (verified by plotting it with software).	15
I'm stuck on objective of q1	As near as I can tell, we are supposed to take the right side of |x|, 0 < x < 1 then shift, stretch and scale f such that it matches the right side of |x|, but this does not make mu...	2
Why does this happen		3
First problem wording not quite right	Problem states that f(t) is an even function of period 2 on 0< t < 1. For period 2, the function should be defined on -1<t<1 (similar to the triangle wave).	6
Enter the Series	I basically substitute the right answer for number 1 into g(u) (a substitution and some manipulations with amplitude), but I still don't get the right answer. Can I get a hint?	2
How i the answe to the 2nd question to be formatted?	Hi I am pretty sure I have the right answer as on desmos it looks like a very good match of f. However, I'm getting the following message: Invalid Input: cost not permitted in a...	3

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