Which of the following statement regarding the Fourier series are correct? 1 point

○ For an odd symmetry, only cosine terms exist.

○ For an even symmetry, only cosine terms exist.

○ For an even symmetry, only sine terms exist.

◉ For an odd symmetry, only sine terms exist.

Clear selection

Evaluate 1 point

$$\int_0^{\frac{\pi}{2}} \sin\left(4x\right) \sin\left(6x\right) \, dx.$$

○ π/2

○ π/4

○ 3π/4

◉ 0

Clear selection

The function f(x) is 1 point

$$f(x) = \begin{cases} 1 & |x| \leq 1 \\ 0 & \text{otherwise} \end{cases}$$

○ Odd

◉ Even

○ None

Clear selection

Find the period of the function f(x)   1 point

$$f(x) = 2020 \, tan^{2020}(2022x + 2023) + 1971$$

○ π/2019

○ 2π/2019

◉ π/2022

○ π/1010

○ π/1011

Clear selection

Value of cos(2nπ)   1 point

○ -1

○ (-1)^n

○ 0

◉ 1

Clear selection

The function f(x) is   1 point

$$s(x) = \begin{cases} 2\sin x & \text{for } 0 \le x < \pi \\ 0 & \text{for } \pi \le x < 2\pi \end{cases}$$

○ Odd

○ Even

◉ None

Clear selection

The function f(x) is   1 point

$$f(x) = \frac{9x}{|x|}$$

◉ Odd

○ Even

○ None

Clear selection

Value of sin(nπ)   1 point

◉ 0

○ -1

○ 1

○ (-1)^n

Clear selection

The function f(x) = 7 is   1 point

○ Odd

◉ Even

○ None

Clear selection

Find the period of the function f(x)   1 point

$$f(x) = 2020 \, Cosec^{2019}(2022x + 2023) + 1971$$

○ 2π/2019

○ π/1010

○ π/2020

○ π/2019

◉ π/1011

Clear selection

For odd function f(x). (SELECT ALL)   1 point

☑ an = 0

☐ bn = 0

☑ a0 = 0

Any periodic function f(x) with a period of 2L can be written as   1 point

$$f(x) = k + \sum_{i=1}^{\infty} \left(a_i \cos\left(\frac{i\pi}{L}x\right) + b_i \sin\left(\frac{i\pi}{L}x\right) \right).$$

Given that f(x) is an even function. Which of the following option is correct?

○ k=0

○ ai = 0

◉ bi = 0

○ None

Clear selection

Value of $\sin((2n+1)\pi/2)$

1 point

○ 0

○ -1

○ $(-1)^{(n+1)}$

● $(-1)^n$

Clear selection

Value of $\cos(n\pi)$

1 point

○ 0

● $(-1)^n$

○ -1

○ 1

Clear selection

For even function f(x). (SELECT ALL)

1 point

☐ an = 0

☑ bn = 0

☐ a0 = 0