TQ LT14

Graded

Group

Tyeon
Cierra

Total Points

0 / 2 pts

Question 1

LT14 **0** / 2 pts

1.1 a **0** / 1 pt

+ 0.5 pts Correct: The solution demonstrates complete mastery of the given Target.

+ 0 pts Revision: The solution might demonstrate complete mastery of the given Target, but needs to be revised for clarity/accuracy.

✔ **+ 0 pts** ⚠ Issues: The solution demonstrates partial understanding of the given Target, but has one or more issues that suggest that further study is required to develop complete mastery.

+ 0 pts x: More practice is needed to demonstrate understanding of the given Target.

+ 0 pts Not completed/Already mastered

To use substitution in an existing series here, you would need to replace the "x" in the series for sin(x) with "2x"

1.2 b **0** / 1 pt

+ 0.5 pts Correct: The solution demonstrates complete mastery of the given Target.

+ 0 pts Revision: The solution might demonstrate complete mastery of the given Target, but needs to be revised for clarity/accuracy.

✔ **+ 0 pts** ⚠ Issues: The solution demonstrates partial understanding of the given Target, but has one or more issues that suggest that further study is required to develop complete mastery.

+ 0 pts x: More practice is needed to demonstrate understanding of the given Target.

+ 0 pts Not completed/Already mastered

The interval is correct, but there is no support for it.

MATH 212: Calculus II SP24 TQ LT14

Name: Cierra, Tyeon

LT14: I can find the Taylor series of a function.
Both questions need to be completed to earn a check, but only one needs to be correct.

1. Find the first four terms of the Taylor series centered at $a = 0$ for the function $f(x) = \sin(2x)$ by using the definition or a known Taylor series, and write in expanded form.

$$\sin(2x) = \sum_{k=0}^{\infty} (-1)^k \frac{2x^{2k+1}}{(2k+1)!} = 2x - \frac{1}{3!}2x^3 + \frac{1}{5!}2x^5 - \frac{1}{7!}2x^7 + \dots$$

2. The Taylor series for $\tan^{-1}(x)$ has summation formula

$$\sum_{n=0}^{\infty} \frac{x^{2n+1}}{2n+1}$$

Find the interval of convergence, where the Taylor series is equal to the function.

$\tan^{-1}(x)$

$$\sum_{n=0}^{\infty} \frac{x^{2n+1}}{2n+1}$$

$n=0$	$n=1$	$n=2$	
$\frac{x^1}{1}$	$\frac{x^3}{3}$	$\frac{x^5}{5}$	$\frac{x^7}{7}$

$\tan^{-1}(x) = T_{\tan^{-1}(x)}$

$$\tan^{-1}(x) = \sum_{n=0}^{\infty} \frac{x^{2n+1}}{2n+1}$$

$$-1 < x < 1$$