

Evaluation of Taylor Series Approximation

1分

One of the great attributes of the Taylor series expansion, is that given information regarding a function $f(x)$ at a point $x = a$, we can evaluate the same function at $x = b$ without actually knowing the function $f(x)$. This assumes that our Taylor series expansion exists.

Assume a finite Taylor series approximation converges everywhere for a given function $f(x)$. And you are given the following information

- $f(3) = 3$, $f'(3) = 2$, $f''(3) = -1$, $f'''(3) = 4$, and
- $f^n(3) = 0$ for all $n > 3$.

What is the value of $f(x)$ evaluated at $x = 5$? Said another way, what is $f(5)$?

You may want to revisit the Definition section for *Taylor Series* (https://en.wikipedia.org/wiki/Taylor_series#Definition).

选项*

- ☐ $10 \frac{1}{3}$
- ☐ Not enough information is given.
- ☐ 8
- ☐ $4 \frac{5}{6}$
- ☐ 13

参考答案: ' $10 \frac{1}{3}$ '.