

amsppt

Cauchy sequences

Assignment 413-9

To be returned 11.13.03

Taylor Expansions

1(5 each). Compute the Taylor expansions of order 3 for each of the following functions at the point $x_0 = 0$:

- a) $(1+x)^\alpha$,
- b) $\log(1+x)$
- c) $\tan x$
- d) $x\sin x$

2 (5 each). Find the limits

- a) $\lim_{x \rightarrow 0} \sin x - x \tan x - x$
- b) $\lim_{x \rightarrow 0} \log(1+x) + 1 - (1+2x)^{12} \cos x - 1$

Integration

3(5). 6.1.5.1

4(5). 6.1.5.2

5(5). 6.1.5.12

6(5). Prove: if a function is Riemann integrable on a closed segment, then it is bounded.

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