

Answers to Week 12 Week in Review

Section 11.10

1.

(a) $\sum_{n=0}^{\infty} \frac{(-1)^n e^1 x^n}{n!}$

(b) $\sum_{n=0}^{\infty} \frac{(-1)^n (x - \frac{\pi}{2})^{2n}}{(2n)!}$

(c) $\ln(2) + \sum_{n=1}^{\infty} \frac{(-1)^{n-1} (x-2)^n}{n2^n}$

2.

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

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

3. $\frac{5}{2}$

Section 11.11

1. $T_2(x) = 1 + \frac{1}{2}x^2$

2. $T_3(x) = 2 + \frac{1}{4}x - \frac{1}{64}x^2 + \frac{1}{512}x^3$

Exam III Review

1.

(a) Absolutely convergent by Comparison (or Limit Comparison) Test with $\sum \frac{1}{n^2}$.

(b) Convergent (by Alternating Series Test) but not absolutely convergent (by Limit Comparison with $\sum \frac{1}{n}$).

2. At least 9998 terms.

3. $R = \frac{4}{3}$, interval is $x \in \left(\frac{2}{3}, \frac{10}{3}\right]$

4. $\sum_{n=0}^{\infty} \frac{(-1)^n 3x^{3n+3}}{3n+3}$; ROC = 1