

Answers to Week 11 Week in Review

Section 11.8

1.

(a) ROC = 1; (-1, 1)

(b) ROC = 0; [0, 0]

(c) ROC = ∞ ; $-\infty, \infty$)

(d) ROC = 6; [-4, 8)

(e) ROC = $\frac{1}{3}$; $\left[\frac{1}{3}, 1\right]$

2. (3, 9)

3. $\left(\frac{2}{3}, \frac{4}{3}\right]$

Section 11.3

1. $f'(x) = \sum_{n=0}^{\infty} \frac{x^n}{n!}$; $\int f(x) dx = \sum_{n=0}^{\infty} \frac{x^n}{n!} + C$; $f(x) = e^x$

2.

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

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

(c) $\sum_{n=0}^{\infty} \frac{x^{n+1}}{3^{n+1}}$

3. $\frac{x}{(1-x)^2}$

4. $-\ln\left(\frac{1}{2}\right)$