Math 121   Self-Assessment Quiz #8   Week 10

• Please see the course webpage for the answer key.

1. Find the Interval and Radius of Convergence for the folllowing power series. Analyze carefully and with full justification.

$$\sum_{n=0}^{\infty} \frac{(-1)^n (7x-3)^n}{(n+1)\, 5^{n+1}}$$

2. Find the Interval and Radius of Convergence for the folllowing power series. Analyze carefully and with full justification.

$$\sum_{n=1}^{\infty} \frac{(-1)^n\, \ln n\, (x+5)^n}{n^2\, 4^n}$$

3. Find the MacLaurin Series representation for each of the following functions. State the Radius of Convergence for each series. You answer should be in sigma notation $\sum_{n=0}^{\infty}$.

(a) $f(x) = \dfrac{x^2}{1+5x}$

(b) $f(x) = x^7 \sin(x^2)$

(c) $f(x) = x \arctan(3x)$

(d) $f(x) = x^4 e^{-x^3}$

(e) $f(x) = x^3 \ln(1+x^3)$

(f) $f(x) = x^2 \cos(4x)$