2. Do WebAssign 9.4. Remember that the WebAssign will be reopened three days before Exam III for you to review the problems. You will be allowed to improve your score by a maximum or three points. Additional attempts will not be given.

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3. Use the Ratio Test to decide whether the series converges or diverges:
$\sum_{n=1}^{\infty} \frac{(n!)^2}{(2n)!}$.

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4. Use the Ratio Test to decide whether the series converges or diverges:
$\sum_{n=1}^{\infty} \frac{1}{ne^n}$.

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5. Explain why the Comparison Test cannot be used to decide if the series converges or diverges:
$\sum_{n=1}^{\infty} \frac{(-1)^n}{n^2}$.

Determine whether the following series converge.

6. $\sum_{n=1}^{\infty} \left(1 - \cos\left(\frac{1}{n}\right)\right)$
Hint: compare to $\sum \frac{1}{n^2}$ using limits.

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7. $\sum_{n=1}^{\infty} \frac{n2^n}{3^n}$

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8. $\sum_{n=1}^{\infty} \frac{(-1)^{n-1}}{2n+1}$

Power Series

Section 9.5
October 27, 2016

Name:
Math 129 - 01

Understand	Given the first several terms of a power series, write it in general form with Σ notation.
Understand	Use known tests to determine whether a power series converges/diverges for a specific value of x.
Apply	Compute the radius of convergence using the ratio test in the cases it is 0, infinite, and finite.
Apply	Determine what happens at the endpoints of an interval of convergence.
Synthesize	Given a series, combine all the above steps to finally report the interval of convergence.

1. Consider the series

$$\frac{(x-2)^4}{4} - \frac{(x-2)^6}{9} + \frac{(x-2)^8}{16} - \frac{(x-2)^{10}}{25} + \dots.$$

Find an expression for the general term of the series and use it to write the series using Σ notation.

Determine whether the series converges or diverges for $x = 1$.

2. Consider the series

$$1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \dots.$$

Find an expression for the general term of the series and use it to write the series using Σ notation.

Determine whether the series converges or diverges for $x = 100$.

Quiz (Leave this space blank)