Math 142
Calculus II
Fall 2001, USC

Nov 29, 2001

Quiz 13

Time:10min

Choose *one* of the following two sets of problems:

Set 1.

1. Show that the power series representation for $\frac{1}{1+x}$ is given by $1-x+x^2-x^3+x^4\ldots$, by recalling the summation formula for the geometric series.

2. Use the above problem and a term by term integration to find a power series for $\ln(1+x)$.

3. Use the previous problem to find the sum of the alternating harmonic series.

Set 2.

1. Use problem 1 in the first set above to find a power series representation for $\frac{1}{1+x^2}$.

2. Use the previous problem and a term by term integration to find a power series for $\tan^{-1} x$.

3. Use the previous problem to obtain a series which converges to π.

Each set is worth a total of 10 points.

LaTeX ..... MG