Present neatly on separate paper. Justify for full credit. No Calculators.

Name _____   Score _____ A (10 minutes) x1

1)

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

2)

What are the values of x for which the series $x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \dots$ converges?

3)

The first three nonzero terms in the Maclaurin series about $x = 0$ of xe^{-x} are

4)

A solid has a circular base of radius 3. If every plane cross section perpendicular to the x-axis is an equilateral triangle, then its

volume is _____.

5)

$$\int_{-1}^{1} \frac{dx}{x^2 + 5x + 6} =$$

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Name _____   Score _____ F (10 minutes) **x1**

1)

. What is the sum of the series $\dfrac{3}{2} - \dfrac{3}{8} + \dfrac{3}{32} - \dfrac{3}{128} + \ldots$?

2)

What are all the values of x for which $\displaystyle\sum_{n=2}^{\infty} \dfrac{(-1)^n}{\ln n} x^n$ converges?

3)

The Maclaurin series for $\dfrac{\sin(x^2)}{x^2}$ is

4)

The base of a solid is the region enclosed by the ellipse $4x^2 + y^2 = 1$. If all plane cross sections perpendicular to the x-axis are

semicircles, then its volume is _____.

5)

$\displaystyle\int_0^2 \ln x \, dx =$