# Test 3 Review

1. Find the interval of convergence of the Power series

$$\sum_{n=0}^{n=\infty} \frac{(2x-5)^n}{\sqrt{2n}}$$

2. Find the radius of convergence of the Power series

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

3. Write the Taylor series for the function centered at $x_0$=1. Write in a closed form (without "..." notation)
F(x)= $3x^{-2}$

4. Find the Taylor series for the function
F(x) = ln(1+2x) about the center $x_0 = 1$ .

5. Represent the function f(x) = $\frac{8}{3-x}$ as a power series, then Find the largest set of x's for which the power series converges to the function. .

6. Find a power series of f(x) = $\frac{3}{1+x^2}$ and Find the largest set of x's for which the power series converges to the function.

7. Find the 5th order polynomial for $f(x) = \frac{7}{x}$ centered at $x_0 = -4$.

8. Use a known Taylor series to represent the integral as an infinite series, (of numbers).

$\int_0^1 e^{-x^2} dx.$

9. Find the power series representation of the function then Find the largest set of x's for which the power series converges to the function.

$$F(x) = \frac{x^2}{(1-2x)^2}$$