QUIZ 9 - MATH 152   Friday, November 17

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [6 points] Find the center, radius of convergence and interval of convergence of the power series
$$\sum_{n=0}^{\infty} 3^n (x - 7)^n.$$

2. [4 points] Find the center, radius of convergence and interval of convergence of the power series

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

3. [2 points] Starting from $\sum_{n=0}^{\infty} x^n$, construct a power series for the function

$$f(x) = \frac{1}{1+5x^2}.$$

Recalling that $\sum_{n=0}^{\infty} x^n$ converges for $|x| < 1$, can you tell what is the radius of convergence of the new power series for f?