Math 1B, Quiz 8 Section 211 GSI Carter

Name:

1. (3pts) Find the power series representing the function $\frac{x}{1-x^3}$.

2. (3pts) Find the Taylor series of the function $\sin x$ centered at $a = \frac{\pi}{3}$. ($\sin \frac{\pi}{3} = \frac{1}{2}, \cos \frac{\pi}{3} = \frac{\sqrt{3}}{2}$)

3. (4pts) The series $\sum_n c_n 3^n$ converges and $\sum_n c_n(-3)^n$ diverges. If R is the radius of convergence of $\sum_n c_n(x-1)^n$, is it possible that $R < 3$? If **true**, explain why, if **false** give a counterexample.