1. (3pts) Find the power series representing the function $\frac{1}{1-x^2}$.

   Since $\frac{1}{1-x} = \sum_{n=0}^{\infty} x^n$, $\frac{1}{1-x^2} = \sum_{n=0}^{\infty} x^{2n}$.

2. (3pts) Find the Taylor series of the function e^x centered at $a = 2$.

   Let $f(x) = e^x$.For each n, $f^{(n)}(x) = e^x$. So, $f^{(n)}(2) = e^2$. Therefore the Taylor series of e^x centered at $a = 2$ is given by

$$f(x) = e^x = \sum_{n=0}^{\infty} \frac{f^{(n)}(a)(x-a)^n}{n!} = \sum_{n=0}^{\infty} \frac{e^2(x-2)^n}{n!}.$$

3. (4pts) The series $\sum_n c_n 2^n$ and $\sum_n c_n(-3)^n$ converge. What is the minimal possible radius of convergence of $\sum_n c_n x^n$?

   Since the power series converges at distances of 2 and 3 away from the center, the radius of convergence must be at least 3.