

1. Find the power series representation of the function $f(x) = \frac{x^2}{3+x}$ centered at 0.

2. Find the power series representation for $f(x) = \frac{1}{x}$ centered at 1.

3. Find the power series representation of $f(x) = \tan^{-1} x$ centered at 0

4. Find the power series representation of $f(x) = \frac{1}{(1-x)^2}$ centered at 0.