MATH 147 Review: Taylor Series

1. Find the Taylor Series of the function $f(x) = x^2 - 2x + 1$ centered at 1.

2. Find the Taylor Series of the function $f(x) = \frac{1}{1+x^2}$ centered at 0.
   <u>Hint:</u> $\frac{1}{1+x^2} = \frac{1}{1-(-x^2)}$.

3. Find the Taylor Series of the function $f(x) = \tan^{-1}(x)$ centered at 0.
   <u>Hint:</u> $\frac{d}{dx}\tan^{-1}(x) = \frac{1}{1+x^2}$.