

Math 253 Lesson 15 - Integration of Power Series

1. Use a power series in order to evaluate  $\int_0^1 \cos(x^2)dx$  accurate within an error of at most  $10^{-4}$ .

2. Use a power series to evaluate  $\int_0^1 \tan^{-1}(x^2)dx$  accurate within  $10^{-4}$ .

3. Use a power series to determine a series representing the area under the curve  $\sin(t)/t$  from 1 to  $c$ .