

1. Find a power series expansion of $\int_0^1 e^{-x^3} dx$.
Approximate the value of this integral within 0.001.

2. *A power series for π :*

- (a) Find a power series expansion for $\frac{1}{1+x^2}$.
- (b) Find a power series expansion for $\arctan(x)$.
- (c) Find a power series expansion for $\frac{\pi}{4} = \arctan(1)$.
- (d) Find a power series expansion for π .