

# Homework 4

Math 232 section 006

Due: Tuesday, October 9th

1. Using binomial series, find the Taylor series about  $x = 0$  for the functions:

(a)  $f(x) = \frac{x}{(1-x)^2}$

(b)  $g(x) = (1 + x)^{1/3}$

2. Evaluate the following integrals:

(a)  $\int_0^\pi (1 + x^2) \cos(x) \, dx$

(b)  $\int \left( \frac{1}{\sqrt{2 + x^2}} \right)^3 dx$

(c)  $\int_1^{10} \sqrt{t} \ln t \, dt$

(d)  $\int \frac{x^2 - 2x + 1}{x(x^2 + 2)} \, dx$

(e)  $\int \frac{\sqrt{x}}{x+1} dx$