Module 4 Homework

1. Find the Taylor's Series of degree 2 centered at the point $x = 0$ for the following functions:
   - a. (5 pts) $f(x) = \cos(5x)$
   - b. (5 pts) $f(x) = \dfrac{1}{x+1}$

2. Do the following problems.
   - a. (5 pts) Find the Taylor's Series of degree 4 for $f(x) = x^{-2}$ centered at the point $x = 1$.
   - b. (5 pts) Use the result of (a) to approximate $f(0.9)$ and $f(1.1)$.
   - c. (5 pts) Use the Taylor's Remainder to find an error formula for the Taylor's Series found in (a).
   - d. (5 pts) Give error upper bounds for each of the two approximations made in part (b).