Math 1211: Recitation #7 **Winter 2014**

Name:	**A#:**	**Section:**

1. Determine whether the following improper integrals converge or diverge. If an integral converges, find its value.

   (a) $\displaystyle\int_0^\infty \frac{dx}{(1+2x)^{2/3}}$

   (b) $\displaystyle\int_0^\infty xe^{-2x}\,dx$

   (c) $\displaystyle\int_{-2}^{2} \frac{x}{\sqrt{2-x}}\,dx$ [*Hint:* Begin with a substitution.]

2. Find the 3rd degree Taylor polynomial of $f(x) = \tan x$ centred at $x = \dfrac{\pi}{4}$.

3. Find the n-th degree Maclaurin polynomial of $f(x) = \dfrac{1}{1-2x}$.