

**Assignment #5****Name** \_\_\_\_\_**Due 16 February 2015**

1. Evaluate the following limits:

(a)  $\lim_{x \rightarrow 0} (\csc(x) - \cot(x))$

(b)  $\lim_{x \rightarrow +\infty} \left(1 + \frac{1}{x}\right)^{x^2}$

2. Evaluate the following integrals:

(a)  $I = \int e^{-x} \cos(x) dx$

(b)  $I = \int x^2 \tan^{-1}(x) dx$