Math 152 - Fall 2012

1. Use known Maclaurin series to write the first three terms of the Maclaurin series for the following:

   (a) xe^{-5x}

   (b) $\dfrac{1}{1 + 7x}$

   (c) $\dfrac{x}{1 + 7x}$

   (d) $\dfrac{d}{dx}\left(\dfrac{\cos(x) - 1}{x}\right)$

   (e) $\displaystyle\int e^{x^2}\,dx$

2. Use known Maclaurin series to find the following limit:

$$\lim_{x \to 0} \frac{\sin(x)}{x}$$