MATH 1100-A 2008 Quiz 6
Sections 3.2 and 3.3

Do not simplify your answers.

1. Differentiate

   (a) $f(x) = e^x \sin x$. (1 pt)
   Solution:
   $$f'(x) = e^x \sin x + e^x \cos x.$$

   (b) $g(x) = \frac{2x^3+x-1}{\cos x+e^x}$. (2 pts)
   Solution:
   $$g'(x) = \frac{(6x^2+1)(\cos x + e^x) - (2x^3+x-1)(-\sin x + e^x)}{(\cos x + e^x)^2}.$$

2. $h(x) = x^3 e^x$. Find $h''(x)$. (2 pts)
   Solution:
   $$\begin{aligned} h'(x) &= 3x^2 e^x + x^3 e^x \\ h'(x) &= 6xe^x + 3x^2 e^x + 3x^2 e^x + x^3 e^x. \end{aligned}$$