King Fahd University of Petroleum & Minerals
Department of Mathematics and Statistics
Math101/Calculus I
Quiz 3
One Problem, November 25^{rd}, 2015 [1]

Problem 1 **(**9 **points)**

Find the linear approximations of $f(x)$ at x_0:

a) $f(x) = \sqrt{-x} - \frac{1}{x}$; $x_0 = 4$

b) $f(x) = x^2 - ln(x)$; $x_0 = e$

c) $f(x) = -sin(\Pi)$; $x_0 = \frac{1}{2}$

Problem 2 **(**6 **points)**

Compute the derivative of $f(x)$:

a) $f(x) = sinh^{-1}(\sqrt{x^2})$;

b) $f(x) = -tanh^{-1}(-x)sech(x^2)$;

[1] The quiz lasts 30 minutes.