

King Fahd University of Petroleum & Minerals
Department of Mathematics and Statistics
Math101/Calculus I
Quiz 3
One Problem, November 23rd, 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) $f(x) = \sinh^{-1}(\sqrt{x})$;

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

¹The quiz lasts 30 minutes.