Practice – 1

Once you feel confident with derivatives of complex trigonometric functions, complete problem 1. Check your answers by going to the Solutions tab in Moodle.

Instructions: Answer each of the following practice questions on a separate piece of paper. Step by step solutions are provided under the Solutions tab. You will learn the material more thoroughly if you complete the questions before checking the answers.

1. Find the derivative of each of the following functions, and then simplify.

   a. $h(x) = \dfrac{\sin x + 2\cos x}{\sin x - 2\cos x}$

   b. $y = 9x + 3\cot(3x) - \cot^3(3x)$

   c. $y = \dfrac{\cos(3x)}{x^2 + 2} + \tan(2x)$

   d. $h(x) = \sqrt{\sin 2x + x} + \dfrac{\csc 3x}{x^3 + 1}$

   e. $g(x) = \csc^2(2x)$