Practice – 2

Once you feel confident with the quotient rule, complete problems 1 to 3. 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 using the quotient rule.

   a. $y = \dfrac{2x+1}{x^2-3}$

   b. $k(x) = \dfrac{x^2+x-5}{x^2+6}$

   c. $m(x) = \dfrac{1+\frac{1}{x}}{x-1}$

   d. $y = \dfrac{\sqrt{x}-2}{\sqrt{x}+2}$

2. Suppose $f(5) = 2$, $f'(5) = 6$, $g(5) = 4$ and $g'(5) = -2$.

   Find $h'(5)$ for each of the following functions.

   a. $h(x) = 2f(x) + \frac{1}{2}g(x)$

   b. $h(x) = f(x)g(x)$

   c. $h(x) = \dfrac{f(x)}{g(x)}$

3. If $y = f(x)$ and $y = g(x)$ are continuous functions, let $h(x) = f(x)g(x)$ and $w(x) = \dfrac{f(x)}{g(x)}$. Find each of the following.

   a. $h'(-1)$

   b. $w'(2)$