1. Suppose

\[ f(x) = \frac{g(x)}{x^2 + 5x + 8}. \]

If \( g(-3) = 2, \ g'(-3) = -4, \ g(5) = 29, \) and \( g'(5) = 8, \) find \( f(5), \) and \( f'(5). \) One of these numbers may be \( 1/116: \)

\[ f(5) = \frac{g(5)}{25 + 25 + 8} = \frac{29}{58} = \frac{1}{2}. \]

\[ f'(x) = \frac{[x^2 + 5x + 8] g'(x) - g(x) [2x + 5]}{[x^2 + 5x + 8]^2} \]

\[ f'(-3) = \frac{2g'(-3) - g(-3)(-1)}{[2]^2} = \frac{-6}{4} = -\frac{3}{2}. \]

\[ f'(5) = \frac{58g'(5) - g(5)(15)}{(58)^2} = \frac{29}{(58)^2} = \frac{1}{116}. \]

2. Suppose

\[ f(x) = \frac{x^3 - 2x}{g(x)}. \]

If \( g(2) = 8, \ g'(2) = 6, \ g(5) = 10, \) and \( g'(5) = 15, \) find \( f(2), \ f'(2), \ f'(5). \)

\[ f(2) = \frac{8 - 4}{g(2)} = \frac{4}{8} = \frac{1}{2}. \]

\[ f'(x) = \frac{g(x)[3x^2 - 2] - [x^3 - 2x] g'(x)}{[g(x)]^2} \]

\[ f'(2) = \frac{g(2) (10) - (4) g'(2)}{[g(2)]^2} = \frac{7}{8}. \]

\[ f'(5) = \frac{g(5)[75 - 2] - [115] g'(5)}{[g(5)]^2} = -\frac{995}{100}. \]