Math 131 - Quiz 6

Name _____

October 1, 2025

Score _____

Show all work to receive credit. Supply explanations where necessary.

1. (2 points) Let $h(x) = 2g(x)f(x)$. Given the following information, compute $h'(2)$.

$$f'(0) = 7, \quad f(2) = -4, \quad f'(2) = 8, \quad g(0) = 0, \quad g(2) = -5, \quad g'(2) = 9$$

2. (3 points) Which one of these is an equation for the line tangent to the graph of $y = 4\sqrt{x} + \dfrac{32}{x}$ at the point where $x = 4$? Show work to receive credit.

   (a) $y + 1 = 16(x - 4)$

   (b) $y - 1 = 16(x - 4)$

   (c) $y = -x + 20$

   (d) $y = -x + 16$

3. (2 points) Let $h(x) = \dfrac{f(x)}{x}$. Given the following information, compute $h'(2)$.

$$f'(0) = 7, \quad f(2) = -4, \quad f'(2) = 8, \quad g(0) = 0, \quad g(2) = -5, \quad g'(2) = 9$$

4. (3 points) Find $\dfrac{d^2y}{dx^2}$ when $y = 6x^3 - 4x^2 + \cos x$.