

HW #5 Solutions

$$\textcircled{1} \quad f'(x) = 3 \cos 3x$$

$$\textcircled{2} \quad g'(x) = 3(\sin 3x)^2 \cdot 3 \cos 3x = 9(\sin 3x)^2 \cos 3x$$

$$\textcircled{3} \quad h'(x) = 9(\sin 3x)^2 \cos 3x + 5$$

$$\textcircled{4} \quad j'(x) = 5[(\sin 3x)^3 + 5x]^4 \cdot [9(\sin 3x)^2 \cos 3x + 5]$$

$$\textcircled{5} \quad k'(x) = 1 - \frac{1}{x^2}$$

$$\textcircled{6} \quad l'(x) = \frac{1}{2\sqrt{x + \frac{1}{x}}} \cdot \left(1 - \frac{1}{x^2}\right)$$

$$\textcircled{7} \quad m'(x) = \frac{1}{2\sqrt{x + \frac{1}{x}}} \cdot \left(1 - \frac{1}{x^2}\right) \left[(\sin 3x)^3 + 5x \right]^5 + \left(\sqrt{x + \frac{1}{x}} \right) \cdot$$

$$\rightarrow 5[(\sin 3x)^3 + 5x]^4 \cdot [9(\sin 3x)^2 \cos 3x + 5]$$

Note: every problem in this assignment builds and depends on previous problems.