Instructions: Do all work on the “work-sheets” that I supply. Do no more than two (2) problems per page. Box your final answer to each question. Circle important “sub-answers.” Draw a horizontal line between each problem. Do not… repeat – do not!!! (a) write anything except the page numbers in the top margin; (b) write anything whatsoever in the left margin; (c) write anything whatsoever on the back of any page, including this. Points will be deducted for each instruction violation!!!!!

#1/10 Use the 5-step method to find \( f'(a) \), if \( f(x) = \frac{x}{2x-1} \)

*** *** *** FROM THIS POINT ONWARD, YOU MAY USE THE “RULES” OF THE DERIVATIVES UNLESS OTHERWISE INSTRUCTED. *** *** ***

#2/10 Find the derivatives

(A). \( f(t) = (2t^3 + 3)(3t^2 - 2) \) Use product rule, then use algebra to simplify and express final answer in polynomial form.

(B). \( g(v) = \frac{\sqrt{v} - v}{\sqrt{v}} \) Use algebra to simplify your answer completely.

#3/10 Find the derivative. \( y = \tan(x) \sec(x) \) For extra credit express the answer in terms of the secant function only, i.e., with no other trig functions present.

#4/10 Find the derivative. \( y = 2x^5 \cot(3x) \)

#5/10 Find the equation in Standard Form for the line tangent to the curve given by \( y = (x^2 + 3x - 1)^2 \) when \( x = -2 \).