

Make sure to show all your work.

1. The equation of the tangent line to $f(x)$ at $x = -3$ is $y = -13(x + 29)$. Determine a , $f(a)$, and $f'(a)$.
2. Consider the function $g(x) = \frac{(5x-2)(7x+1)}{2x-4}$. Find the value(s) of a where the equation of the tangent line to the graph of $g(x)$ is perpendicular to the line with equation $4x + 10y = 17$. Then determine the equation(s) of the tangent line(s) at the a value(s).