TMATH 124am: Quiz 3

Show *all* your work (numerically, algebraically, or geometrically) for each and simplify. No credit is given without supporting work.

1. [5] (product & quotient wks #4) Let $f(x) = \dfrac{6x}{1 + 3x^2}$

   (a) Find the slope of the line tangent to the graph of f when $x = 2$.

   (b) Find where the function f has a horizontal tangent line.

2. [2] (§3.3 #43) Find $\displaystyle\lim_{x \to 0} \frac{5x^3 - 4x}{\sin(3x)}$

3. [3] (WebHW9 #8) Let $g(x) = 5^{x^3 \sin(x)}$. Find $g'(x)$ and *simplify.*