TMATH 124am: Quiz 3

Show *all* your work (numerically, algebraically, or geometrically) for each and simplify. No credit is given without supporting work. There are two sides of this quiz.

1. [2] (Trig Wks #2b) Find the *limit*: $\lim\limits_{x \to 0} \dfrac{\sin(3x)\sin(5x)}{x^2}$

2. (§3.1 #35) Let $f(x) = x^4 + 2e^x$.

   (a) [1] Find $f'(x)$.

   (b) [3] Find the equation of the line that is tangent to f at the point $(0, 2)$.

3. (WebHW7 #9) Let $g(x) = x + \cos(x)$.

   (a) [1] Find $\frac{d}{dx} g(x)$.

   (b) [3] Find all x values where the graph of g has a horizontal tangent line.