1. (2ea) Determine the derivative of each function below.

(a) $f(x) = e^{x^3 - 5x}$

(b) $g(x) = 8^{2x + 3}$

(c) $h(x) = x^2 e^{x^2}$
2. (4) Determine \( f'(1) \) for \( f(x) = e^{\sqrt{x^2+4x}} \). Round to three decimal places.

3. (5) Find the equation of the line which is tangent to the graph of \( f(x) = e^x(5x^4 + 62x^2 + 4x + 11) \) when \( x = 0 \). Write your answer in point-slope form.
4. (5) A company which produces high quality sombreros finds that their profit (in thousands of dollars) can be modeled by the function \( P(x) = \frac{x^2 + 5}{1.25^x} \), where \( x \) is measured in hundreds of sombreros. What is the company’s marginal profit when 700 sombreros are produced? Round your answer the nearest dollar (and pay attention to units).