Math 124, Fall 2018, Solutions to Quiz 4

Differentiate the following functions. Make sure you use parentheses when necessary. You do not have to simplify your answers.

1. $f(x) = \left(3x^3 + 5\sqrt{x}\right)^7$

$$f'(x) = 7\left(3x^3 + 5\sqrt{x}\right)^6 \left(9x^2 + \frac{5}{2\sqrt{x}}\right)$$

2. $g(x) = \sin\left(x^2\right) + \sin^2(x)$

$$g'(x) = 2x\cos\left(x^2\right) + 2\sin(x)\cos(x)$$

3. $h(x) = \sqrt{\tan\left(x + e^x\right)}$

$$h'(x) = \frac{(1 + e^x)\sec^2\left(x + e^x\right)}{2\sqrt{\tan\left(x + e^x\right)}}$$