Quiz 4: Sections 3.1 and 3.2 **Name:** Key

Instructions: Show all work and simplify your answers! Correct answers without work will receive zero points. Also, points will be taken from messy solutions. **Good Luck!** ☺

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1. What is the equation of the tangent line at $x = 3$ for the function $f(x) = x^2 + 7x$?

$f'(x) = 2x + 7$

$f'(3) = 2 \cdot 3 + 7 = 13$

$f(x) = x^2 + 7x$

$f(3) = 9 + 21 = 30$

tangent line at $x = 3$:

$y - 30 = 13(x - 3)$

OR $y = 13(x - 3) + 30$

2. What is the derivative of $f(x) = x^4 + x^{\sqrt{43}} + e^{\pi}$

$f'(x) = 4x^3 + \sqrt{43}\, x^{\sqrt{43}-1} + 0$

$= 4x^3 + \sqrt{43}\, x^{\sqrt{43}-1}$