Name: _____ **Lehman ID:** _____

By writing my name above, I acknowledge complying with the CUNY Academic Integrity Policy while completing this examination.

MAT175 (Spring 2019)
Quiz 2

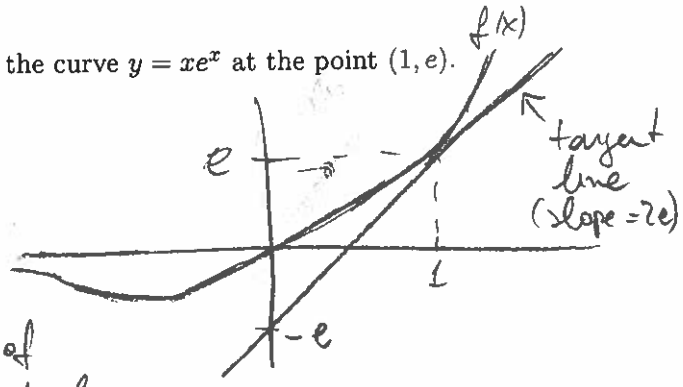
1. **(5 pts)** Compute the **first and second** derivatives of the following function:

$$f(x) = x^4 - 3e^x + \sqrt{5}\,x - \cos(x)$$

$f'(x) = 4x^3 - 3e^x + \sqrt{5} + \sin(x)$

$f''(x) = 12x^2 - 3e^x + \cos(x)$

2. **(5 pts)** Find the equation of the tangent line to the curve $y = xe^x$ at the point $(1, e)$.



$f(x) = xe^x$

$f'(x) = e^x + xe^x$

$f'(1) = e + e = 2e$ ← slope of tangent line

$y = (2e)x + b$

$e = 2e \cdot 1 + b \Rightarrow b = e - 2e = -e$

$y = 2e \cdot x - e$ is the equation of the tangent line at $(1, e)$.