# Quiz 4

MATH 11A - Discussion Section C
February 22, 2017

Name & ID # : _____

**Directions:** Leave your final answer in exact form and box it in. You are more than welcome to write on the back if you find it necessary.
**Differentiation Shortcuts:** You may find the following helpful:

$$\frac{d}{dx}x^n = nx^{n-1} \quad \text{for} \quad n \in \mathbb{R}, \quad (fg)' = f'g + fg', \quad \left(\frac{f}{g}\right)' = \frac{f'g - fg'}{g^2}, \quad \text{and} \quad (f(g))' = f'(g) \cdot g'$$

---

(1) A table of values for $f$, $g$, $f'$, and $g'$ is given:

| $x$ | $f(x)$ | $g(x)$ | $f'(x)$ | $g'(x)$ |
|---|---|---|---|---|
| 1 | 3 | 2 | 4 | 6 |
| 2 | 1 | 8 | 5 | 7 |
| 3 | 7 | 2 | 7 | 9 |

(a) If $h(x) = f(g(x))$, find $h'(1)$.
(b) If $p(x) = g(f(x))$, find $p'(1)$.

(2) Find equations of the tangent line and normal line to the curve $y = 2xe^x$ at $(0, 0)$.