7. [7 points] Determine whether the following series is convergent or divergent. **Fully justify** your answer including using **proper notation** and **showing mechanics** of any tests you use.
Circle your final answer choice.

$$\sum_{n=2}^{\infty} \frac{4^n \cdot n^2}{n!}$$

Circle one: **Convergent**   **Divergent**

8. [6 points] Compute the following limit. **Fully justify** your answer including using **proper notation.**

$$\lim_{x \to 0} \frac{e^{2x} - (x+1)^2}{\cos(x) - 1}$$

Answer: _____