Let \( y = x^2 e^{-x} \). Perform the following analysis:

1. Determine the domain of \( y(x) \).
2. For which \( x \) is \( y(x) \) continuous?
3. Mark some points that clearly lie on the graph.
4. Check for symmetries (odd, even, periodic).
5. Find \( \lim_{x \to \infty} y(x) \), \( \lim_{x \to -\infty} y(x) \) (long-term behavior).
6. Identify critical points. Which ones are stationary?
7. Indicate intervals of increase/decrease.
8. Identify points of local (relative) max/min and values there.
9. Indicate intervals of concavity.
10. Check for inflection points.
11. Sketch the graph.
12. Check your work with a graphing utility.