Please return this page with your signature. Please write your name and student number at the spaces provided:

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Signature: _____ **Date:** _____

Circle your class lecture: 3–4:15 PM   5–6:15 PM

You are given the following survival function for a newborn:

$$S_0(x) = (1 + x)\,\mathrm{e}^{-x}, \quad \text{for } x \geq 0.$$

1. Demonstrate that $S_0(x)$ satisfies the important properties of a legitimate survival function.

2. Calculate μ_{50}.

3. Calculate $_{40}p_0$.

4. Give an expression for $S_{40}(t)$, the survival function for the future lifetime of (40).

5. Calculate the probability that (40) will reach centennial age 100.