1. (5 points) The curve \( y = \frac{x^4}{16} + \frac{1}{2x^2}, 1 \leq x \leq 2, \) is rotated about the \( y \)-axis. Find the area of the resulting surface.
2. (5 points)
(a) Verify that every member of the family of functions $y = Ce^x + x + 1$ is a solution of the differential equation $y' = y - x$.

(b) Find a solution of the differential equation, $y' = y - x$, which satisfies the initial condition $y(0) = 0$. 