Problem ER-1. (Linear Integrating Factor Method)
The symbolic solution of $y' = -2xy$, $y(0) = 2$ is $y = 2e^{-x^2}$. Display the details of the linear integrating factor method derivation of this symbolic solution, plus a full answer check.
Problem ER-2. (Variables Separable Method)

The exact symbolic solution of $y' = \frac{1}{2}(y - 1)^2$, $y(0) = 2$ is $y = \frac{x - 4}{x - 2}$. Display the details of the variables separable method derivation of this symbolic solution, plus a full answer check.