Calculus and Linear Algebra II

Quiz 5

Instructions:

• Do all the work on this quiz paper.

• Show your work, i.e., write down the steps of your solution cleanly and readable.

• Electronic devices and notes are not allowed.

Name: ________________________________
Problem 1 [8 points]
Find the solution to the first-order ordinary differential equation \( \frac{dy}{dx} = \lambda \sqrt{y} \) for any \( \lambda > 0 \) using separation of variables (it is ok to only find \( y(x) \) for \( x > 0 \)). Write down your solution using the general initial data \( y(0) = y_0 \geq 0 \).
Problem 1 (extra space)
Problem 2 [7 points]
Compute the determinant of

\[
\begin{pmatrix}
1 & 2 & 3 \\
0 & 1 & 2 \\
1 & 3 & 2 \\
\end{pmatrix}
\]

Clearly state which property or method you use in each step of the computation.
Problem 2 (extra space)