1. Problem 2.3.
2. Problem 2.10.
3. Consider the following second-order partial differential equation

\[
\frac{\partial^2 u}{\partial x^2} + 3 \frac{\partial^2 u}{\partial x \partial y} - 4 \frac{\partial^2 u}{\partial y^2} + y \frac{\partial u}{\partial x} - 3x \frac{\partial u}{\partial y} = 0
\]

(a) Find the characteristics \((\xi, \eta)\) of the PDE.
(b) Transform the PDE to \((\xi, \eta)\) coordinates (i.e., Canonical form).

Due Friday  09/28/2018