

Directions: Show **ALL** work for credit; Give **EXACT** answers when possible; **SIMPLIFY** your answers;

1. Fill in the table below. The classification of the equation goes into the row labeled type. The characteristics go into the rows labeled Φ and Ψ . And the new variables are either ξ (text uses v) and η (text uses w) are in terms of x and y . The normal form is in partials with respect to ξ and η .

PDE	$u_{xx} + 9u_{yy}$	$u_{xx} - u_{xy}$	$u_{xx} + u_{xy} - 6u_{yy}$
type			
$\Phi =$			
$\Psi =$			
$\xi =$			
$\eta =$			
Normal form			