"Descriptive Question"

Quiz-3

$$8u_{xx} + 2u_{xy} - 3u_{yy} = 0$$

Here $B = 2$, $A = 8$, $C = -3$.

$$B^2 - 4AC = 4 + 96 = 100 \quad (>0)$$

"Hyperbolic"

"1-marks"

(b) Change of variable:

$$\frac{dy}{dx} = \frac{B \pm \sqrt{B^2 - 4AC}}{2A}$$

$$= 3/4, \; -1/2$$

$$y = \frac{3x}{4} + c_1, \qquad y = -\frac{1}{2}x + c_2$$

$$\xi(x,y) = y - \frac{3x}{4} \qquad \eta(x,y) = y + \frac{1}{2}x$$

1 marks

1 marks

directly the Expressio

Most students will use ... for $\bar{A}, \bar{B}, \bar{C}, \bar{D}, \bar{E}, \bar{F}, \bar{G}$ as done in Lectures

After computation they will get

$$\bar{A} = 0 = \bar{C} = \bar{D} = \bar{E} = \bar{F} = \bar{G}$$

→ (2) marks

If they do not compute all of them Given (1)

$$\bar{B} = -25/2$$

→ (1) marks

[ ] marks for writing the canonical form correctly

$$u_{3n} = 0$$

NOTICE

Students may use different change of variable

$$\left.\begin{aligned} \xi(x,y) &= 4y - 3x \\ \eta(x,y) &= 2y + x \end{aligned}\right\}$$

All the other marking scheme stays same except, $\overline{B} = -100$

Even