Forma generala: $a''_{x^2} + 2b''_{xy} + c''_{y^2} + d'_x + e'_y = 0$

$u(x, y)$ functie necunoscuta

$a, b, c, d, e \in \mathbb{R}$

$\Delta'_1 = b^2 - ac$

Daca $\Delta_1 > 0 \Rightarrow$ ec. tip hiperbolic

Daca $\Delta_1 = 0 \Rightarrow$ ec. tip parabolic (mixta se reduce)

Daca $\Delta_1 < 0 \Rightarrow$ ec. tip eliptic

Ecuatia caracteristica: $a(y')^2 - 2by' + c = 0,\ y' = \dfrac{dy}{dx}$

$y'1, y'2 \begin{cases} \varphi(x, y) \\ \psi(x, y) \end{cases}$

$u(x, y) \to U(\xi, \eta)$

$\Delta_2 = b^2 - 4ac$

$\Delta_2 = 4\Delta_1$

<u>Obs.</u>: Pt. $\Delta_1 = 0 \Rightarrow y'_1 = y'_2 = \varphi(x, y)$. Alegem $\psi(x, y) = x$ sau $\psi(x, y) = y$ astfel incat:

$$\begin{vmatrix} \varphi'_x & \varphi'_y \\ \psi'_x & \psi'_y \end{vmatrix} \neq 0$$