

$$\begin{aligned}
&= \sin(x^2 - y^2) (e^{-2xy} (+4y^2 - 4x^2)) \\
&+ e^{-2xy} \cos(x^2 - y^2) [-4xy + 4xy + 2] \\
&= +4e^{-2xy} \sin(x^2 - y^2) (-x^2 + y^2) + 2e^{-2xy} \cos(x^2 - y^2) \\
&\quad - 8xy e^{-2xy} \cos(x^2 - y^2) \\
\frac{\partial^2 p}{\partial y^2} &= -2x e^{-2xy} \sin(x^2 - y^2) - 2y e^{-2xy} \cos(x^2 - y^2) \\
&= -2e^{-2xy} (x \sin(x^2 - y^2) + y \cos(x^2 - y^2))
\end{aligned}$$

$$\frac{\partial^2 p}{\partial y^2} = 4x e^{-2xy} (x \sin(x^2 - y^2) + y \cos(x^2 - y^2))$$

$$\begin{aligned}
&+ (-2e^{-2xy}) (-2xy \cos(x^2 - y^2) + \cos(x^2 - y^2)) \\
&\quad + 2y^2 \sin(x^2 - y^2)
\end{aligned}$$

$$= e^{-2xy} \sin(x^2 - y^2) (+4x^2 - 4y^2)$$

$$+ e^{-2xy} \cos(x^2 - y^2) (4xy + 4xy - 2)$$

En sommant on obtient :