$$\frac{\partial^2 z}{\partial x^2} + 4\frac{\partial^2 z}{\partial x \partial y} - \frac{\partial z}{\partial y} = z$$

\# $z(x,y) = F(x)\cdot G(y)$

$$\frac{\partial^2 z}{\partial x^2} = F''\cdot G \qquad \frac{\partial^2 z}{\partial x \partial y} = F'G'$$

$$\frac{\partial z}{\partial y} = FG'$$

$$F''G + 4F'G' - FG' = FG$$

$$4F'G' - FG' = FG - F''G$$

$$(4F' - F)G' = (F - F'')G$$

$$\frac{G'}{G} = \frac{F - F''}{4F' - F}$$

para $\alpha = -2$

$$\frac{G'}{G} = -2 \qquad \frac{F - F''}{4F' - F} = -2$$

$$G' + 2G = 0 \qquad F - F'' = -2(4F' - F)$$

$$F'' - 8F' + F = 0$$

$$(D+2)G(y) = 0 \qquad (D^2 - 8D + 1)F(x) = 0$$

$$G(y) = k_1 e^{-2y} \qquad m^2 - 8m + 1 = 0$$

$$m = \frac{8 \pm \sqrt{64-4}}{2} \Rightarrow m_1 = \frac{8+\sqrt{60}}{2} \quad m_2 = \frac{8-\sqrt{60}}{2}$$

$$F(x) = C_1 e^{\frac{8+\sqrt{60}}{2}x} + C_2 e^{\frac{8-\sqrt{60}}{2}x}$$

$$z(x,y) = e^{-2y}\left(C_{10} e^{\frac{8+\sqrt{60}}{2}x} + C_{20} e^{\frac{8-\sqrt{60}}{2}x}\right)$$