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[> restart
> Ecuacion := diff(z(x,y), x$2) - 6*diff(z(x,y), y) = 0
      Ecuacion :=  $\frac{\partial^2}{\partial x^2} z(x,y) - 6 \left( \frac{\partial}{\partial y} z(x,y) \right) = 0$  (1)
=
> EcuacionDos := eval(subs(z(x,y) = F(x)·G(y), Ecuacion))
      EcuacionDos :=  $\left( \frac{d^2}{dx^2} F(x) \right) G(y) - 6 F(x) \left( \frac{d}{dy} G(y) \right) = 0$  (2)
=
> EcuacionTres := simplify  $\left( \frac{\left( lhs(EcuacionDos) + 6 F(x) \left( \frac{d}{dy} G(y) \right) \right)}{F(x) \cdot G(y)} \right)$ 
      =  $\frac{\left( rhs(EcuacionDos) + 6 F(x) \left( \frac{d}{dy} G(y) \right) \right)}{F(x) \cdot G(y)}$ 
      EcuacionTres :=  $\frac{\frac{d^2}{dx^2} F(x)}{F(x)} = \frac{6 \left( \frac{d}{dy} G(y) \right)}{G(y)}$  (3)
=
> EcuacionX := lhs(EcuacionTres) = alpha; EcuacionY := rhs(EcuacionTres) = alpha;
      EcuacionX :=  $\frac{\frac{d^2}{dx^2} F(x)}{F(x)} = \alpha$ 
      EcuacionY :=  $\frac{6 \left( \frac{d}{dy} G(y) \right)}{G(y)} = \alpha$  (4)
=
> SolucionCeroX := dsolve(subs(alpha=0, EcuacionX))
      SolucionCeroX :=  $F(x) = \_C1 x + \_C2$  (5)
=
> SolucionCeroY := dsolve(subs(alpha=0, EcuacionY))
      SolucionCeroY :=  $G(y) = \_C1$  (6)
=
> SolucionCero := z(x,y) = rhs(SolucionCeroX)·subs(\_C1 = \_C10, rhs(SolucionCeroY))
      SolucionCero :=  $z(x,y) = (\_C1 x + \_C2) \_C10$  (7)
[C

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