```
> restart
> Ecua := diff(z(x,y),y$2) + 2·diff(z(x,y),x,y) + diff(z(x,y),x$2) = 0
```

$$Ecua := \frac{\partial^2}{\partial y^2} z(x,y) + 2 \frac{\partial^2}{\partial x \partial y} z(x,y) + \frac{\partial^2}{\partial x^2} z(x,y) = 0 \quad (1)$$

```
> with(PDEtools) :
> SolGralUno := pdsolve(Ecua)
```

$$SolGralUno := z(x,y) = f_1(y-x) + f_2(y-x)\,x \quad (2)$$

```
> SolGralDos := z(x,y) = f[1](y-x) + f[2](y-x)·y
```

$$SolGralDos := z(x,y) = f_1(y-x) + f_2(y-x)\,y \quad (3)$$

```
> ComprobarUno := simplify(eval(subs(z(x,y) = rhs(SolGralUno), Ecua)))
```

$$ComprobarUno := 0 = 0 \quad (4)$$

```
> ComprobarDos := simplify(eval(subs(z(x,y) = rhs(SolGralDos), Ecua)))
```

$$ComprobarDos := 0 = 0 \quad (5)$$

```
> restart
> SolGral := z(x,y) = f[1](x + 5·y) + f[2](x - 3·y)
```

$$SolGral := z(x,y) = f_1(x+5\,y) + f_2(x-3\,y) \quad (6)$$

```
> EcuaCarac := m^2 - 2·m - 15 = 0
```

$$EcuaCarac := m^2 - 2\,m - 15 = 0 \quad (7)$$

```
> Ecua := diff(z(x,y),y$2) - 2·diff(z(x,y),x,y) - 15·diff(z(x,y),x$2) = 0
```

$$Ecua := \frac{\partial^2}{\partial y^2} z(x,y) - 2 \frac{\partial^2}{\partial x \partial y} z(x,y) - 15 \frac{\partial^2}{\partial x^2} z(x,y) = 0 \quad (8)$$

```
> Comprobar := simplify(eval(subs(z(x,y) = rhs(SolGral), Ecua)))
```

$$Comprobar := 0 = 0 \quad (9)$$

```
> with(PDEtools) :
> SolGralDos := pdsolve(Ecua)
```

$$SolGralDos := z(x,y) = f_1(3\,y-x) + f_2(x+5\,y) \quad (10)$$

```
>
```