```
> restart
> Ecuacion := diff(y(x, t), t$2) - 5·diff(y(x, t), x, t) + 6·diff(y(x, t), x$2) = 0
```

$$Ecuacion := \frac{\partial^2}{\partial t^2} y(x,t) - 5\left(\frac{\partial^2}{\partial x\,\partial t} y(x,t)\right) + 6\left(\frac{\partial^2}{\partial x^2} y(x,t)\right) = 0 \quad (1)$$

```
> SolucionGeneral := pdsolve(Ecuacion)
```

$$SolucionGeneral := y(x,t) = \_F1(3t + x) + \_F2(2t + x) \quad (2)$$

```
> SolucionParticularUno := y(x, t) = 5·cos(x + 2 t) + 6 tan(x + 3 t)
```

$$SolucionParticularUno := y(x,t) = 5\cos(2t + x) + 6\tan(3t + x) \quad (3)$$

```
> SolucionParticularDos := y(x, t) = 8·exp(x + 2 t) + 6·cosh(x + 3 t)
```

$$SolucionParticularDos := y(x,t) = 8\,e^{2t+x} + 6\cosh(3t + x) \quad (4)$$

```
> SolucionParticularDosDos := convert(SolucionParticularDos, exp)
```

$$SolucionParticularDosDos := y(x,t) = 8\,e^{2t+x} + 3\,e^{3t+x} + 3\,e^{-3t-x} \quad (5)$$

```
> SolucionParticularTres := y(x, t) = (x + 2 t)··4 + (x + 3 t)··6
```

$$SolucionParticularTres := y(x,t) = (2t + x)^4 + (3t + x)^6 \quad (6)$$

```
> SolucionParticularTresTres := expand(SolucionParticularTres)
```

$$SolucionParticularTresTres := y(x,t) = 16t^4 + 32t^3x + 24t^2x^2 + 8tx^3 + x^4 + 729t^6 + 1458t^5x + 1215t^4x^2 + 540t^3x^3 + 135t^2x^4 + 18tx^5 + x^6 \quad (7)$$

```
> Comprobacion_0 := simplify(eval(subs(y(x, t) = rhs(SolucionGeneral), Ecuacion)))
```

$$Comprobacion_0 := 0 = 0 \quad (8)$$

```
> Comprobacion_1 := simplify(eval(subs(y(x, t) = rhs(SolucionParticularUno), Ecuacion)))
```

$$Comprobacion_1 := 0 = 0 \quad (9)$$

```
> Comprobacion_2 := simplify(eval(subs(y(x, t) = rhs(SolucionParticularDos), Ecuacion)))
```

$$Comprobacion_2 := 0 = 0 \quad (10)$$

```
> Comprobacion_22 := simplify(eval(subs(y(x, t) = rhs(SolucionParticularDosDos),
    Ecuacion)))
```

$$Comprobacion_{22} := 0 = 0 \quad (11)$$

```
> Comprobacion_3 := simplify(eval(subs(y(x, t) = rhs(SolucionParticularTres), Ecuacion)))
```

$$Comprobacion_3 := 0 = 0 \quad (12)$$

```
> Comprobacion_33 := simplify(eval(subs(y(x, t) = rhs(SolucionParticularTresTres),
    Ecuacion)))
```

$$Comprobacion_{33} := 0 = 0 \quad (13)$$

```
> Comprobacion_1 := simplify(eval(subs(y(x, t) = rhs(SolucionParticularUno), Ecuacion)))
> restart
> Ecuacion := diff(z(x, y), x$2) + 4·diff(z(x, y), x, y) + 4·diff(z(x, y), y$2) = 0
```

$$Ecuacion := \frac{\partial^2}{\partial x^2} z(x,y) + 4\left(\frac{\partial^2}{\partial y\,\partial x} z(x,y)\right) + 4\left(\frac{\partial^2}{\partial y^2} z(x,y)\right) = 0 \quad (14)$$

```
> SolucionUno := pdsolve(Ecuacion)
```

$$SolucionUno := z(x,y) = \_F1(y - 2x) + \_F2(y - 2x)\,x \quad (15)$$

```
> SolucionDos := z(x, y) = F_1(y - 2 x) + y·F_2(y - 2 x)
```

(16)

$$SolucionDos := z(x, y) = F_1(y - 2\,x) + y\,F_2(y - 2\,x) \quad \textbf{(16)}$$

> $Comprobacion_1 := simplify(eval(subs(z(x, y) = rhs(SolucionUno), Ecuacion)))$

$$Comprobacion_1 := 0 = 0 \quad \textbf{(17)}$$

> $Comprobacion_2 := simplify(eval(subs(z(x, y) = rhs(SolucionDos), Ecuacion)))$

$$Comprobacion_2 := 0 = 0 \quad \textbf{(18)}$$

>