```
> restart
> Ecua := diff(f(x, y), x$2) + 5·diff(f(x, y), x, y) + 6·diff(f(x, y), y$2) = 0
```

$$Ecua := \frac{\partial^2}{\partial x^2} f(x, y) + 5 \left(\frac{\partial^2}{\partial y \, \partial x} f(x, y) \right) + 6 \left(\frac{\partial^2}{\partial y^2} f(x, y) \right) = 0 \qquad (1)$$

```
> with(PDEtools)
```

$[$ *CanonicalCoordinates, ChangeSymmetry, CharacteristicQ, CharacteristicQInvariants,* $\qquad$ (2)

$\qquad$ *ConservedCurrentTest, ConservedCurrents, ConsistencyTest, D_Dx, DeterminingPDE,*

$\qquad$ *Eta_k, Euler, FromJet, FunctionFieldSolutions, InfinitesimalGenerator, Infinitesimals,*

$\qquad$ *IntegratingFactorTest, IntegratingFactors, InvariantEquation, InvariantSolutions,*

$\qquad$ *InvariantTransformation, Invariants, Laplace, Library, PDEplot, PolynomialSolutions,*

$\qquad$ *ReducedForm, SimilaritySolutions, SimilarityTransformation, Solve, SymmetryCommutator,*

$\qquad$ *SymmetryGauge, SymmetrySolutions, SymmetryTest, SymmetryTransformation,*

$\qquad$ *TWSolutions, ToJet, build, casesplit, charstrip, dchange, dcoeffs, declare, diff_table,*

$\qquad$ *difforder, dpolyform, dsubs, mapde, separability, splitstrip, splitsys, undeclare* $]$

```
> SolGral := pdsolve(Ecua)
```

$$SolGral := f(x, y) = \_F1(y - 3x) + \_F2(y - 2x) \qquad (3)$$

```
> CompCero := eval(subs(f(x, y) = rhs(SolGral), Ecua))
```

$$CompCero := 0 = 0 \qquad (4)$$

```
> SolPartUno := f(x, y) = 5·exp(y - 3x) + 4·cos(y - 2x)
```

$$SolPartUno := f(x, y) = 5\,e^{y - 3x} + 4\cos(-y + 2x) \qquad (5)$$

```
> CompUno := eval(subs(f(x, y) = rhs(SolPartUno), Ecua))
```

$$CompUno := 0 = 0 \qquad (6)$$

```
> SolPartDos := f(x, y) = (y - 3x)··3 + (y - 2x)··5
```

$$SolPartDos := f(x, y) = (y - 3x)^3 + (y - 2x)^5 \qquad (7)$$

```
> CompDos := eval(subs(f(x, y) = rhs(SolPartDos), Ecua))
```

$$CompDos := 0 = 0 \qquad (8)$$

```
> SolTriv := f(x, y) = C[1]·y + C[2]·x + C[3]
```

$$SolTriv := f(x, y) = x\,C_2 + y\,C_1 + C_3 \qquad (9)$$

```
> CompTriv := eval(subs(f(x, y) = rhs(SolTriv), Ecua))
```

$$CompTriv := 0 = 0 \qquad (10)$$

```
>
```