```
> restart;
> interface(version);
```
Standard Worksheet Interface, Maple 2025.2, Windows 11, November 11 2025 Build ID 1971053 **(1)**

```
> Physics:-Version();
```
Warning, not a built-in function (`copy`)
Error, (in Physics:-GetSetupINFO) invalid subscript selector

```
> SupportTools:-Version();
```
The Customer Support Updates version in the MapleCloud is 29 and is the same as the version installed in this computer, created June 23, 2025, 10:25 hours Eastern Time. **(2)**

```
> libname;
```
"C:\Users\Filip\maple\toolbox\2025\Physics Updates\lib", **(3)**
"C:\Users\Filip\maple\toolbox\2025\Maple Customer Support Updates\lib",
"C:\Program Files\Maple 2025\lib", "C:\Users\Filip\maple\toolbox\DirectSearch\lib",
"C:\Users\Filip\maple\toolbox\Google Maps and Geocoding\lib",
"C:\Users\Filip\maple\toolbox\NaturalLanguage\lib",
"C:\Users\Filip\maple\toolbox\TextTools\lib"

```
> ode:=x*y(x)*diff(y(x),x)^2+(a+x^2-y(x)^2)*diff(y(x),x)-y
  (x)*x = 0;
```
Error, (in Physics:-GetSetupINFO) invalid subscript selector

Error, unexpected result from Typesetting

```
> dsolve(ode);
```
Error, (in Physics:-GetSetupINFO) invalid subscript selector

```
> infolevel[dsolve]:=5;
```
$$infolevel_{dsolve} := 5 \quad \textbf{(4)}$$

```
> dsolve(ode);
Methods for first order ODEs:
   *** Sublevel 2 ***
   Methods for first order ODEs:
   -> Solving 1st order ODE of high degree, 1st attempt
   trying 1st order WeierstrassP solution for high degree ODE
   trying 1st order WeierstrassPPrime solution for high degree
ODE
   trying 1st order JacobiSN solution for high degree ODE
   trying 1st order ODE linearizable_by_differentiation
   trying differential order: 1; missing variables
   trying simple symmetries for implicit equations
   Successful isolation of dy/dx: 2 solutions were found.
Trying to solve each resulting ODE.
      *** Sublevel 3 ***
      Methods for first order ODEs:
      --- Trying classification methods ---
      trying homogeneous types:
      trying exact
      Looking for potential symmetries
      trying an equivalence to an Abel ODE
      trying 1st order ODE linearizable_by_differentiation
   -> Solving 1st order ODE of high degree, Lie methods, 1st
trial
```

-> Computing symmetries using: way = 3

$$[x^3 + y^2 x + a x, y x^2 + y^3 - y a]$$

<- successful computation of symmetries.

1st order, trying reduction of order with given symmetries:

$$[x (x^2 + y^2 + a), -y (-x^2 - y^2 + a)]$$

1st order, trying the canonical coordinates of the invariance group

-> Computing canonical coordinates for the symmetry [x*(x^2+y^2+a), -y*(-x^2-y^2+a)]

-> Computing symmetries using: way = 4

$$\left[2 x, -\frac{x^2 - y^2 + a}{y}\right]$$

<- successful computation of symmetries.

1st order, trying reduction of order with given symmetries:

$$\left[2 x, -\frac{x^2 - y^2 + a}{y}\right]$$

1st order, trying the canonical coordinates of the invariance group

-> Computing canonical coordinates for the symmetry [2*x, -(x^2-y^2+a)/y]

-> Computing symmetries using: way = 2

-> Computing symmetries using: way = 2

-> Solving 1st order ODE of high degree, 2nd attempt.

Trying parametric methods

trying d'Alembert

-> Solving 1st order ODE of high degree, Lie methods, 2nd trial

-> Computing symmetries using: way = 4

$$\left[2 x, -\frac{x^2 - y^2 + a}{y}\right]$$

<- successful computation of symmetries.

-> Computing symmetries using: way = 5

$$\left[0, \frac{\sqrt{x^4 + 2 y^2 x^2 + y^4 + 2 a x^2 - 2 a y^2 + a^2}}{y}\right], \left[0, \frac{1}{y}\left(x^4 + 2 y^2 x^2 + y^4 + \sqrt{x^4 + 2 y^2 x^2 + y^4 + 2 a x^2 - 2 a y^2 + a^2}\, x^2 + \sqrt{x^4 + 2 y^2 x^2 + y^4 + 2 a x^2 - 2 a y^2 + a^2}\, y^2 + 2 a x^2 - 2 a y^2 + a^2\right)\right]$$

<- successful computation of symmetries.

1st order, trying reduction of order with given symmetries:

$$\left[0, \frac{\sqrt{x^4 + 2 y^2 x^2 + y^4 + 2 a x^2 - 2 a y^2 + a^2}}{y}\right], \left[0, \frac{1}{y}\left(x^4 + 2 y^2 x^2 + y^4 + \sqrt{x^4 + 2 y^2 x^2 + y^4 + 2 a x^2 - 2 a y^2 + a^2}\, x^2 + \sqrt{x^4 + 2 y^2 x^2 + y^4 + 2 a x^2 - 2 a y^2 + a^2}\, y^2 + 2 a x^2 - 2 a y^2 + a^2\right)\right]$$

1st order, trying the canonical coordinates of the invariance group

-> Computing canonical coordinates for the symmetry [0, (x^4+2*x^2*y^2+y^4+2*a*x^2-2*a*y^2+a^2)^(1/2)/y]

<- 1st order, canonical coordinates successful

-> Tackling next ODE
1st order, trying reduction of order with given symmetries:

$$\left[0, \frac{\sqrt{x^4+2y^2x^2+y^4+2ax^2-2ay^2+a^2}}{y}\right], \left[0, \frac{1}{y}\left(x^4+2y^2x^2+y^4\right.\right.$$
$$+\sqrt{x^4+2y^2x^2+y^4+2ax^2-2ay^2+a^2}\,x^2$$
$$\left.\left.+\sqrt{x^4+2y^2x^2+y^4+2ax^2-2ay^2+a^2}\,y^2+2ax^2-2ay^2+a^2\right)\right]$$

1st order, trying the canonical coordinates of the invariance group
-> Computing canonical coordinates for the symmetry [0, (x^4+2*x^2*y^2+y^4+2*a*x^2-2*a*y^2+a^2)^(1/2)/y]
<- 1st order, canonical coordinates successful
Error, (in Physics:-GetSetupINFO) invalid subscript selector