```
> restart
> Ecua := (x + y^2) - 2·x·y·y' = 0
```

$$Ecua := x + y(x)^2 - 2\,x\,y(x)\left(\frac{d}{dx}\,y(x)\right) = 0 \tag{1}$$

```
> with(DEtools) :
> odeadvisor(Ecua)
```

$$[[\_homogeneous, class\ G], \_rational, \_Bernoulli] \tag{2}$$

```
> F := intfactor(Ecua)
```

$$F := \frac{1}{x^2} \tag{3}$$

```
> EcuaDos := expand(F·Ecua)
```

$$EcuaDos := \frac{1}{x} + \frac{y(x)^2}{x^2} - \frac{2\,y(x)\left(\frac{d}{dx}\,y(x)\right)}{x} = 0 \tag{4}$$

```
> odeadvisor(EcuaDos)
```

$$[[\_homogeneous, class\ G], \_exact, \_rational, \_Bernoulli] \tag{5}$$

```
> MM := 1/x + y^2/x^2
```

$$MM := \frac{1}{x} + \frac{y^2}{x^2} \tag{6}$$

```
> NN := -2*y/x
```

$$NN := -\frac{2\,y}{x} \tag{7}$$

```
> IntMMx := int(MM, x)
```

$$IntMMx := \ln(x) - \frac{y^2}{x} \tag{8}$$

```
> SolGral := IntMMx + int((NN - diff(IntMMx, y)), y) = _C1
```

$$SolGral := \ln(x) - \frac{y^2}{x} = \_C1 \tag{9}$$

```
> Ecua
```

$$x + y(x)^2 - 2\,x\,y(x)\left(\frac{d}{dx}\,y(x)\right) = 0 \tag{10}$$

```
> SolGralFinal := ln(x) - y(x)^2/x = _C1
```

$$SolGralFinal := \ln(x) - \frac{y(x)^2}{x} = \_C1 \tag{11}$$

```
> DerSolGral := simplify(isolate(diff(SolGralFinal, x), diff(y(x), x)))
```

$$DerSolGral := \frac{d}{dx}\,y(x) = \frac{1}{2}\,\frac{y(x)^2 + x}{x\,y(x)} \tag{12}$$

```
> DerEcua := simplify(isolate(Ecua, diff(y(x), x)))
```

(13)

$$DerEcua := \frac{d}{dx} y(x) = \frac{1}{2} \frac{y(x)^2 + x}{x\, y(x)} \quad (13)$$

```
> restart
> Ecuacion := (2·x·y^2 − 3·y^3) + (7 − 3·x·y^2)·y' = 0
```

$$Ecuacion := 2\, x\, y(x)^2 - 3\, y(x)^3 + \left(7 - 3\, x\, y(x)^2\right) \left(\frac{d}{dx} y(x)\right) = 0 \quad (14)$$

```
> with(DEtools) :
> odeadvisor(Ecuacion)
```

$$[\_rational] \quad (15)$$

```
> G := intfactor(Ecuacion)
```

$$G := \frac{1}{y(x)^2} \quad (16)$$

```
> EcuacionDos := expand(G·Ecuacion)
```

$$EcuacionDos := 2\, x - 3\, y(x) + \frac{7 \left(\frac{d}{dx} y(x)\right)}{y(x)^2} - 3 \left(\frac{d}{dx} y(x)\right) x = 0 \quad (17)$$

```
> odeadvisor(EcuacionDos)
```

$$[\_exact, \_rational] \quad (18)$$

```
> MM := 2 x − 3 y
```

$$MM := 2\, x - 3\, y \quad (19)$$

```
> NN := 7/y^2 − 3·x
```

$$NN := \frac{7}{y^2} - 3\, x \quad (20)$$

```
> IntNNy := int(NN, y)
```

$$IntNNy := -\frac{7}{y} - 3\, x\, y \quad (21)$$

```
> SolGral := IntNNy + int( (MM − diff(IntNNy, x)), x) = _C1
```

$$SolGral := -\frac{7}{y} - 3\, x\, y + x^2 = \_C1 \quad (22)$$

```
>
```