```
> restart
> IntegralNueva := Int(log(x), x) = int(log(x), x) + k1
```

$$IntegralNueva := \int \ln(x)\, dx = x\ln(x) - x + k_1 \tag{1}$$

```
> IntegralDefinida := Int(log(x), x = 1..2) = evalf(int(log(x), x = 1..2), 4)
```

$$IntegralDefinida := \int_1^2 \ln(x)\, dx = 0.386 \tag{2}$$

```
> restart
> EcuacionOriginal := x·diff(y(x), x) + y(x) = log(x);
```

$$EcuacionOriginal := x\left(\frac{d}{dx}y(x)\right) + y(x) = \ln(x) \tag{3}$$

```
> EcuacionNorm := expand(lhs(EcuacionOriginal)/x) = rhs(EcuacionOriginal)/x
```

$$EcuacionNorm := \frac{d}{dx}y(x) + \frac{y(x)}{x} = \frac{\ln(x)}{x} \tag{4}$$

```
> p(x) := 1/x; q(x) := rhs(EcuacionNorm);
```

$$p(x) := \frac{1}{x}$$

$$q(x) := \frac{\ln(x)}{x} \tag{5}$$

```
> SolucionGeneral := y(x) = C1·exp(-int(p(x), x)) + expand(exp(-int(p(x), x))
    ·int(exp(int(p(x), x))·q(x), x))
```

$$SolucionGeneral := y(x) = \frac{C1}{x} + \ln(x) - 1 \tag{6}$$

```
> SolGral := dsolve(EcuacionOriginal)
```

$$SolGral := y(x) = \ln(x) - 1 + \frac{C1}{x} \tag{7}$$

```
> comprobacion1 := simplify(eval(subs(y(x) = rhs(SolucionGeneral), lhs(EcuacionOriginal)
    - rhs(EcuacionOriginal) = 0)))
```

$$comprobacion_1 := 0 = 0 \tag{8}$$

```
> restart
>
```

$$\frac{dy}{dx} - 2y = 5e^{3x} - 24\,\text{sen}(6x) - 8\cos(6x)$$

```
> Ecuacion := diff(y(x), x) - 2·y(x) = 5·exp(3x) - 24·sin(6x) - 8·cos(6x)
```

$$Ecuacion := \frac{d}{dx}y(x) - 2y(x) = 5e^{3x} - 24\sin(6x) - 8\cos(6x) \tag{9}$$

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

$$SolucionGeneral := y(x) = 5\,e^{3x} + 4\cos(6x) + e^{2x}\_C1 \quad \textbf{(10)}$$

>

>

>

>