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> eq:=diff(y(x),x,x)-3*diff(y(x),x)+2*y(x)=0;
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$$eq := \frac{d^2}{dx^2} y(x) - 3 \left(\frac{d}{dx} y(x) \right) + 2 y(x) = 0 \quad (1)$$

```
> dsolve(eq,y(x));
```

$$y(x) = _C1 e^x + _C2 e^{2x} \quad (2)$$

```
> eq1:=diff(y(x),x,x)-3*diff(y(x),x)+2*y(x)=3*exp(-x)-10*cos(3*x);
```

$$eq1 := \frac{d^2}{dx^2} y(x) - 3 \left(\frac{d}{dx} y(x) \right) + 2 y(x) = 3 e^{-x} - 10 \cos(3x) \quad (3)$$

```
> dsolve(eq1,y(x));
```

$$y(x) = \frac{1}{2} e^{-x} + \frac{7}{13} \cos(3x) + \frac{9}{13} \sin(3x) + _C1 e^{2x} + e^x _C2 \quad (4)$$

```
> eq2 := {diff(y(x),x,x)-3*diff(y(x),x)+2*y(x)=3*exp(-x)-10*cos(3*x),y(0)=1,D(y)(0)=2}
```

$$eq2 := \left\{ \frac{d^2}{dx^2} y(x) - 3 \left(\frac{d}{dx} y(x) \right) + 2 y(x) = 3 e^{-x} - 10 \cos(3x), y(0) = 1, D(y)(0) = 2 \right\} \quad (5)$$

```
> dsolve(eq2,y(x));
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$$y(x) = \frac{1}{2} e^{-x} + \frac{7}{13} \cos(3x) + \frac{9}{13} \sin(3x) + \frac{6}{13} e^{2x} - \frac{1}{2} e^x \quad (6)$$

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>
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