```
> restart
> Ecua := diff(x(t), t$2) + 2·diff(x(t), t) + 2·x(t) = 0
```

$$Ecua := \frac{d^2}{dt^2} x(t) + 2\left(\frac{d}{dt} x(t)\right) + 2\,x(t) = 0 \quad (1)$$

```
> DerSeg := isolate(Ecua, diff(x(t), t$2))
```

$$DerSeg := \frac{d^2}{dt^2} x(t) = -2\left(\frac{d}{dt} x(t)\right) - 2\,x(t) \quad (2)$$

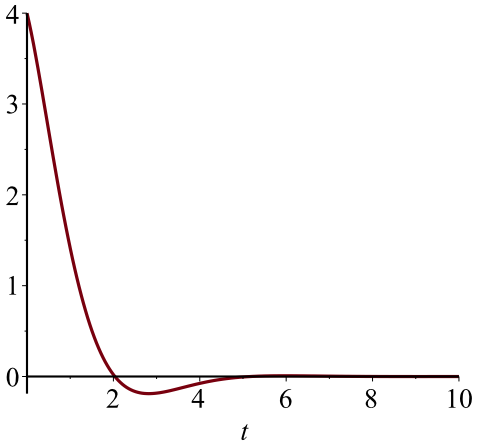
```
> Cond := x(0) = 4, D(x)(0) = -2
```

$$Cond := x(0) = 4,\ D(x)(0) = -2 \quad (3)$$

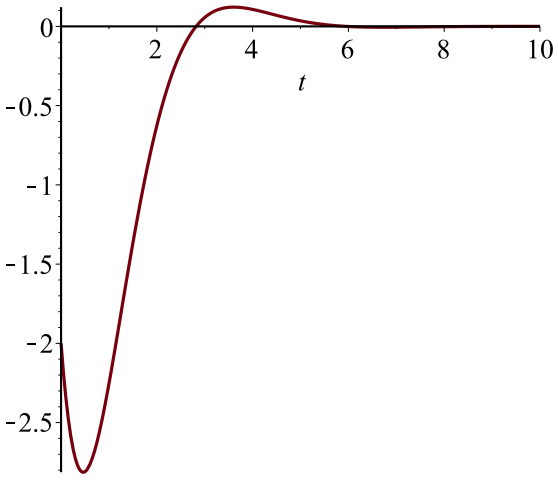
```
> SolPart := dsolve({Ecua, Cond})
```

$$SolPart := x(t) = 2\,e^{-t}\sin(t) + 4\,e^{-t}\cos(t) \quad (4)$$

```
> plot(rhs(SolPart), t = 0..10)
```




```
> plot(rhs(diff(SolPart, t)), t = 0..10)
```




```
> EcuaTres := lhs(Ecua) = 5·cos(2·t)
```

$$EcuaTres := \frac{d^2}{dt^2} x(t) + 2\left(\frac{d}{dt} x(t)\right) + 2\,x(t) = 5\cos(2\,t) \quad \textbf{(5)}$$

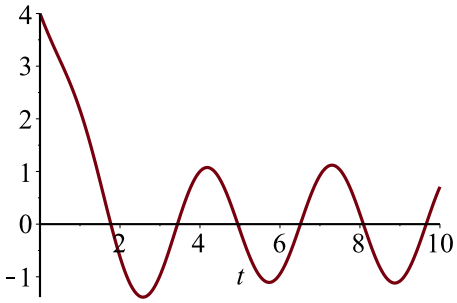
> $DerSegunda := isolate(EcuaTres, diff(x(t), t\$2))$

$$DerSegunda := \frac{d^2}{dt^2} x(t) = 5\cos(2\,t) - 2\left(\frac{d}{dt} x(t)\right) - 2\,x(t) \quad \textbf{(6)}$$

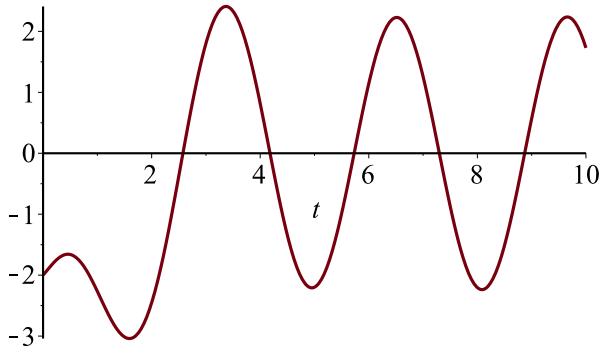
> $SolPartTres := dsolve(\{EcuaTres, Cond\})$

$$SolPartTres := x(t) = \frac{1}{2} e^{-t}\sin(t) + \frac{9}{2} e^{-t}\cos(t) + \sin(2\,t) - \frac{1}{2}\cos(2\,t) \quad \textbf{(7)}$$

> $plot(rhs(SolPartTres), t = 0..10)$



> $plot(rhs(diff(SolPartTres, t)), t = 0..10)$



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