```
> restart
>
```

$$\frac{d^2y}{dt^2} - 2\frac{dy}{dt} + 2y = 5\cos(2t) \qquad y(0) = 1 \qquad y'(0) = -1$$

```
> Ecuacion := diff(y(t), t$2) - 2 diff(y(t), t) + 2 y(t) = 5 cos(2 t)
```

$$Ecuacion := \frac{d^2}{dt^2} y(t) - 2\left(\frac{d}{dt} y(t)\right) + 2\,y(t) = 5\cos(2\,t) \tag{1}$$

```
> Condiciones := y(0) = 1, D(y)(0) = -1;
```

$$Condiciones := y(0) = 1,\ D(y)(0) = -1 \tag{2}$$

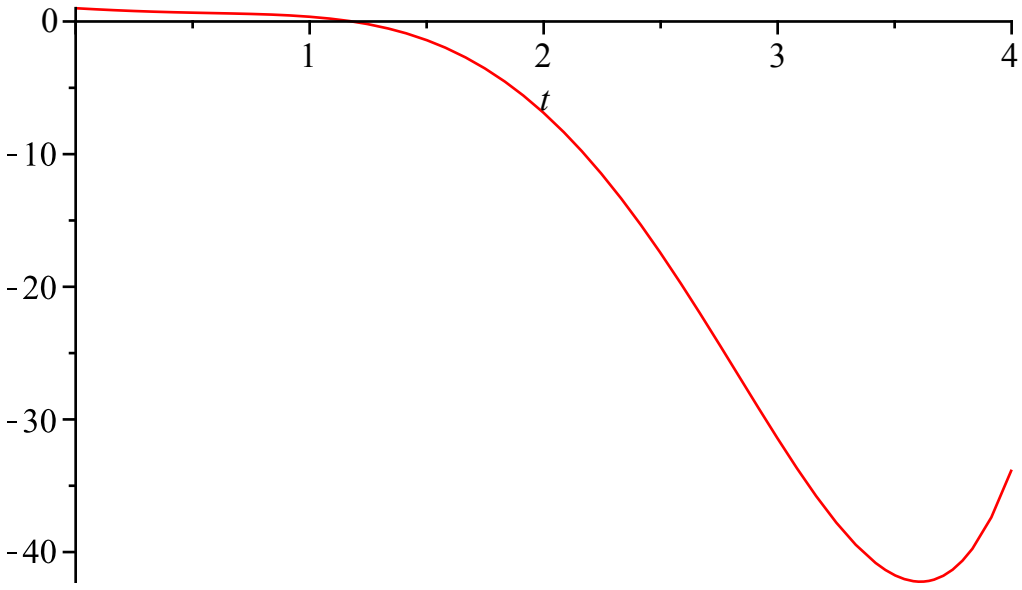
```
> SolucionGeneral := dsolve(Ecuacion)
```

$$SolucionGeneral := y(t) = e^t \sin(t)\ \_C2 + e^t \cos(t)\ \_C1 - \sin(2\,t) - \frac{1}{2}\cos(2\,t) \tag{3}$$

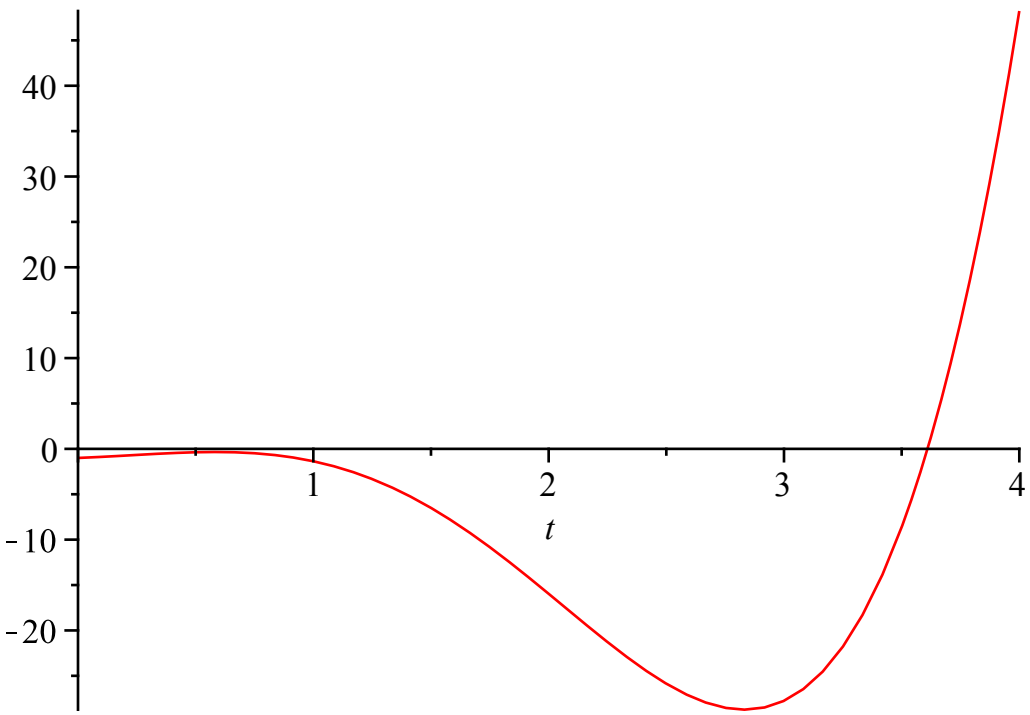
```
> SolucionParticular := dsolve({Ecuacion, Condiciones})
```

$$SolucionParticular := y(t) = -\frac{1}{2} e^t \sin(t) + \frac{3}{2} e^t \cos(t) - \sin(2\,t) - \frac{1}{2}\cos(2\,t) \tag{4}$$

```
> plot(rhs(SolucionParticular), t = 0..4)
```




```
> plot(rhs(diff(SolucionParticular, t)), t = 0..4)
```


40
30
20
10
0
-10
-20
1
2
3
4
t