```
> restart;
> eq := diff(y(t), t, t) + 2/sin(2·t)·diff(y(t), t) + y(t) = 0;
```

$$eq := \frac{d^2}{dt^2} y(t) + \frac{2\left(\frac{d}{dt} y(t)\right)}{\sin(2\,t)} + y(t) = 0 \tag{1}$$

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

$$y(t) \tag{2}$$

$$= \frac{1}{\sin(2\,t)\left(\sqrt{\sin(2\,t)+1}\,\sqrt{\sin(2\,t)-1}+\mathrm{I}\right)}\left(\_C1\right.$$

$$\sqrt{\frac{\left(\cos(2\,t)^2+2\sqrt{\cos(2\,t)^2}+1\right)\sqrt{\cos(2\,t)^2}}{\cos(2\,t)^2\sqrt{-\frac{1}{\cos(2\,t)^2}}}}\left(\sqrt{\cos(2\,t)^2}-1\right)\mathrm{LegendreP}\left(-\frac{1}{2},\right.$$

$$\left.\left.1,\frac{\cos(2\,t)+3}{\cos(2\,t)-1}\right)\right)$$

$$+\frac{1}{\sin(2\,t)\left(\sqrt{\sin(2\,t)+1}\,\sqrt{\sin(2\,t)-1}+\mathrm{I}\right)}\left(\_C2\right.$$

$$\sqrt{\frac{\left(\cos(2\,t)^2+2\sqrt{\cos(2\,t)^2}+1\right)\sqrt{\cos(2\,t)^2}}{\cos(2\,t)^2\sqrt{-\frac{1}{\cos(2\,t)^2}}}}\left(\sqrt{\cos(2\,t)^2}-1\right)\mathrm{LegendreQ}\left(-\frac{1}{2},\right.$$

$$\left.\left.1,\frac{\cos(2\,t)+3}{\cos(2\,t)-1}\right)\right)$$

```
>
```