

```
> restart
```

```
> Ecuacion := diff(y(t), t$2) = - 959/100
```

$$\text{Ecuacion} := \frac{d^2}{dt^2} y(t) = - \frac{959}{100} \quad (1)$$

```
> Condiciones := y(0) = 207/100, D(y)(0) = 0
```

$$\text{Condiciones} := y(0) = \frac{207}{100}, D(y)(0) = 0 \quad (2)$$

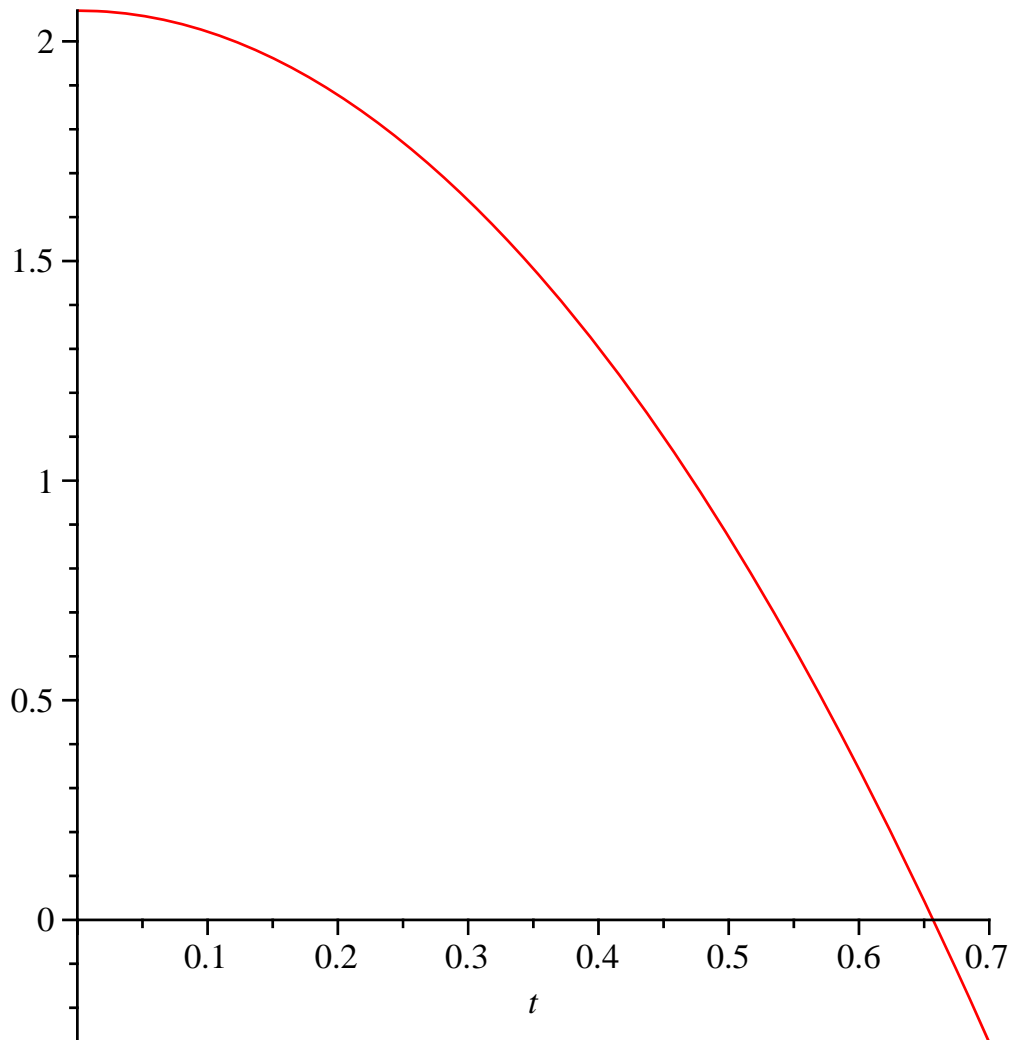
```
> SolucionGeneral := dsolve(Ecuacion)
```

$$\text{SolucionGeneral} := y(t) = - \frac{959}{200} t^2 + _C1 t + _C2 \quad (3)$$

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

$$\text{SolucionParticular} := y(t) = - \frac{959}{200} t^2 + \frac{207}{100} \quad (4)$$

```
> plot(rhs(SolucionParticular), t = 0 .. 0.7)
```



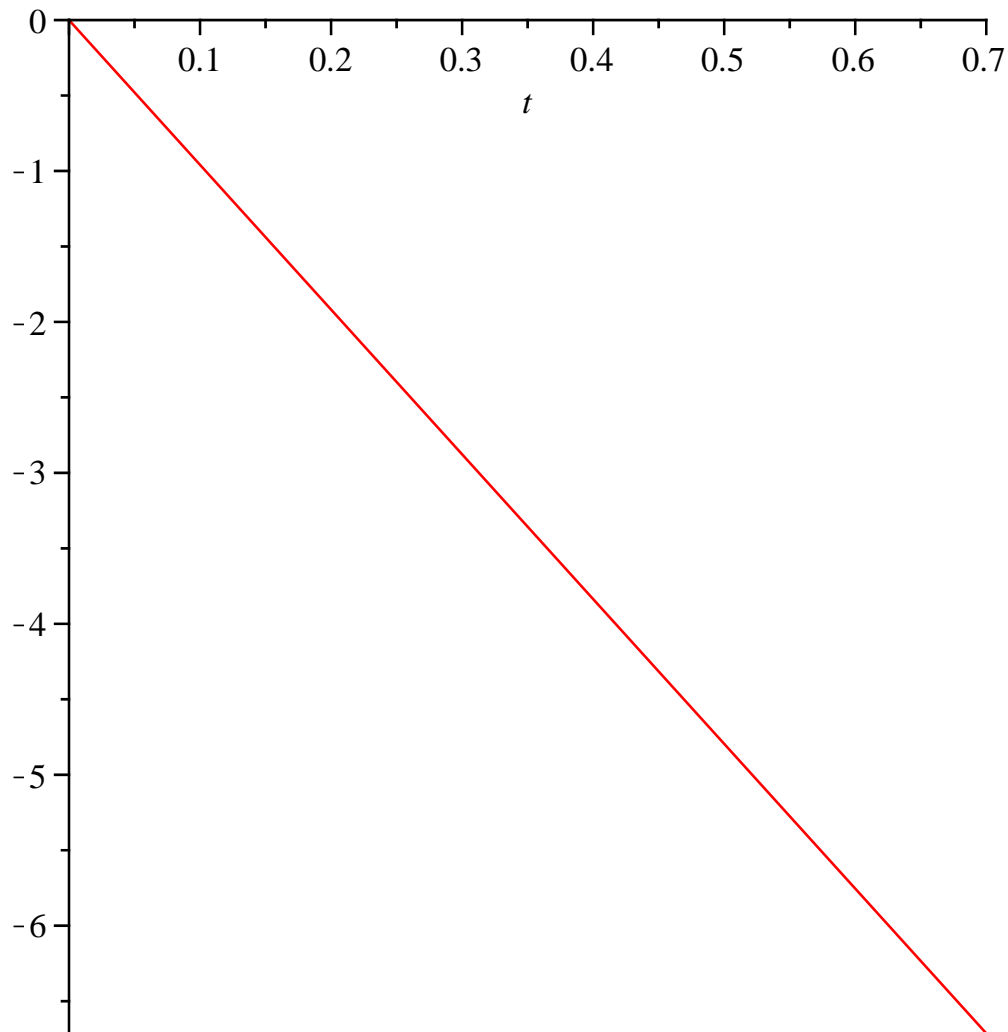
```
> TiempoCaida := solve(rhs(SolucionParticular) = 0, t); evalf(%, 10)
```

$$TiempoCaida := -\frac{3}{959} \sqrt{44114}, \frac{3}{959} \sqrt{44114}$$

$$-0.6570385737, 0.6570385737$$

(5)

> plot(rhs(diff(SolucionParticular, t)), t=0..0.7)



> VelocidadFinal := subs(t=TiempoCaida₂, rhs(diff(SolucionParticular, t))); evalf(%, 10);

$$\frac{\text{evalf}(\%, 10) \cdot 3600}{1000}$$

$$VelocidadFinal := -\frac{3}{100} \sqrt{44114}$$

$$-6.300999921$$

$$-22.68359972$$

(6)

> CondicionesDos := y(0) = $\frac{4519}{1000}$, D(y)(0) = 0

$$CondicionesDos := y(0) = \frac{4519}{1000}, D(y)(0) = 0$$

(7)

> SolucionDos := dsolve({Ecuacion, CondicionesDos})

$$SolucionDos := y(t) = -\frac{959}{200} t^2 + \frac{4519}{1000}$$

(8)

```
> TiempoDos := solve(rhs(SolucionDos) = 0, t); evalf(%, 10)
```

$$TiempoDos := -\frac{1}{4795} \sqrt{21668605}, \frac{1}{4795} \sqrt{21668605}$$

$$-0.9707935113, 0.9707935113$$

(9)

```
> VelocidadDos := subs(t = TiempoDos, rhs(diff(SolucionDos, t))); evalf(%, 10);
```

$$\frac{\text{evalf}(\%, 10) \cdot 3600}{1000}$$

$$VelocidadDos := -\frac{1}{500} \sqrt{21668605}$$

$$-9.309909774$$

$$-33.51567519$$

(10)

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