```
> eq1:=diff(v(t),t)=g-k*v(t);
```

$$eq1 := \frac{\partial}{\partial t} \mathrm{v}(t) = g - k\, \mathrm{v}(t)$$

```
> init:=v(0)=v0;
```

$$init := \mathrm{v}(0) = v0$$

```
> sol:=dsolve({eq1,init},v(t));
```

$$sol := \mathrm{v}(t) = \frac{g}{k} + \mathrm{e}^{(-k\,t)} \left(-\frac{g}{k} + v0 \right)$$

```
> assign(sol);
> simplify(eq1);
```

$$-\mathrm{e}^{(-k\,t)} (-g + v0\, k) = -\mathrm{e}^{(-k\,t)} (-g + v0\, k)$$

```
> limit(v(t),k=0);
```

$$t\, g + v0$$

```
> assume(k>0);
> limit(v(t),t=infinity);
```

$$\frac{g}{k\sim}$$

```
> v0:=0;k:=1;g:=9.8;
```

$$v0 := 0$$

$$k := 1$$

$$g := 9.8$$

```
> plot(v(t),t=0..10);
> k:='k';
```

$$k := k$$

```
> V:=unapply(v(t),k,t);
```

$$V := (k, t) \rightarrow \frac{g}{k} + e^{(-k\,t)} \left(-\frac{g}{k} + v0 \right)$$

```
> with(plots);
```

[*animate*, *animate3d*, *conformal*, *contourplot*, *cylinderplot*, *densityplot*, *display*, *display3d*, *fieldplot*, *fieldplot3d*, *gradplot*, *gradplot3d*, *implicitplot*, *implicitplot3d*, *loglogplot*, *logplot*, *matrixplot*, *odeplot*, *pointplot*, *polarplot*, *polygonplot*, *polygonplot3d*, *polyhedraplot*, *replot*, *setoptions*, *setoptions3d*, *spacecurve*, *sparsematrixplot*, *sphereplot*, *surfdata*, *textplot*, *textplot3d*, *tubeplot*]

```
> plot3d(V(k,t),t=0..1,k=0..10,orientation=[-60,75],axes=NORMAL);
>
```