```
(%i127) E:180;
        Vm:230*sqrt(2),numer;
        a:45*%pi/180;
        R:12;
        L:22*10^-3;
        w:50*2*%pi,numer;
        b:atan(w*L/R),numer;
        z:sqrt(R^2+(w*L)^2),numer;
        V(wt):=Vm*sin(wt+a);
        C:(E/R)-Vm/z*sin(a-b),numer;
        ti:-0.1;
        tf:2*%pi;
```

(%o127) 180

(%o128) 325.2691193458119

(%o129) $\frac{\pi}{4}$

(%o130) 12

(%o131) $\frac{11}{500}$

(%o132) 314.1592653589793

(%o133) 0.5225544346474

(%o134) 13.84806431604333

(%o135) $\mathrm{V}\left(wt\right) := Vm \sin\left(wt + a\right)$

(%o136) 8.89705939289934

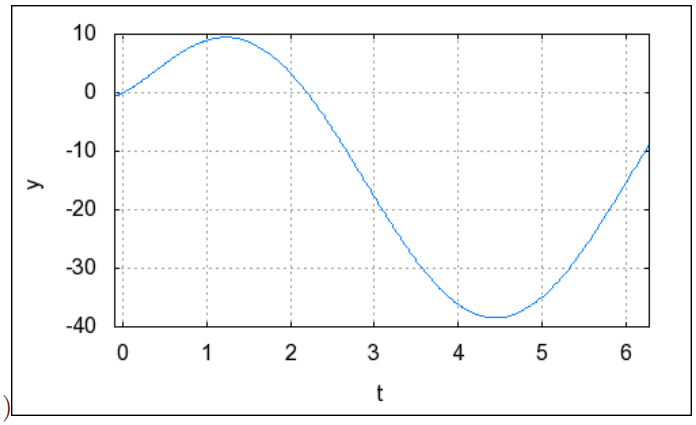
(%o137) -0.1

(%o138) $2\,\pi$

```
(%i139) i(wt):=C*%e^(-R/(L*w)*t)+Vm/z*sin(wt+a-b)-(E/R);
        Vt(wt):=if i(t)>0 then V(wt) else 0;
        wxplot2d([i(t)],[t,ti,tf],[y,-40,10],[gnuplot_preamble, "set grid"]);
```

(%o139) $\mathrm{i}\left(wt\right) := C\, e^{\frac{-R}{L\,w}\,t} + \frac{Vm}{z} \sin\left(wt + a - b\right) - \frac{E}{R}$

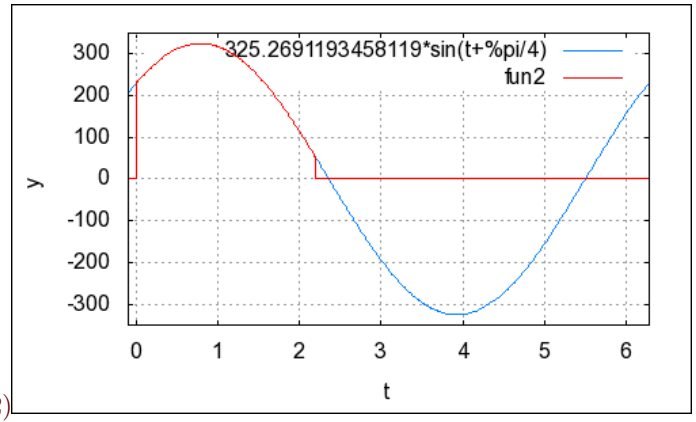
(%o140) $\mathrm{Vt}\left(wt\right) := \mathrm{if}\, \mathrm{i}\left(t\right) > 0 \,\mathrm{then}\, \mathrm{V}\left(wt\right) \,\mathrm{else}\, 0$



(%t141)

(%o141)

```
(%i142) wxplot2d([V(t), Vt(t)],[t,ti,tf],[y,-350,350],[gnuplot_preamble, "set grid"]);
```



(%t142)

(%o142)