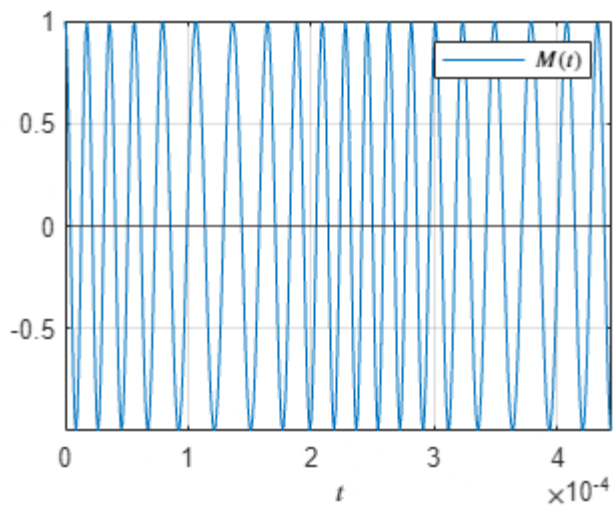


```
% modulation
Am = .3; fm = 4000;      % Vpp
```

```
% Carrier components
Ac = 2; fc = 45000;
syms t
```

```
kf = 10;
% modulated signal
s = Ac*cos(2*pi*fc*t + kf*Am*sin(2*pi*fm*t))/2;
% time vector
t0 = 0:1/(20*fc):20/fc;

% plot
plot(t0, subs(s, t0))
yline(0)
grid on
axis tight
xlabel '$t$ Interpreter latex
legend '$M(t)$ Interpreter latex
```



```
% demodulation
d = diff(s, 't');

o=matlabFunction(d);

h = abs(hilbert(o(t0)))
```

```
h = 1x401
105 ×
    1.3440    2.2058    2.8486    3.3379    3.7017    3.9564    4.0936    4.1541 ...
```

```

plot(t0, [h; subs(d, t0)]/4.8137e5)
yline(0)
grid on
axis tight
xlabel  $t$  Interpreter latex
legend  $M(t)$   $Envelope$  Interpreter latex

```

