

1. Assume  $\psi = 0$  and let  $x(t) = \cos(2\pi 2000t)$ . Use a carrier frequency of  $f_c = 20$  kHz. Plot  $x(t)$ ,  $y(t)$ ,  $w(t)$  and  $v(t)$ . And also plot their magnitude spectrums. Define the time vector  $t$  as  $[0:200]*t_s$  where  $t_s$  is the step size given by  $t_s = 1/(10*f_c)$ .

