Problem 2   Lecture 12

$K_a = 0.5$
$f_c = 2\,kHz$
$A_c = 10\,V$

$M(t) = 0.5\cos(200\pi t) + \cos(400\pi t)$

we AM-modulate Signal

$S(t) = A_c\left[1 + k_a\,m(t)\right]\cdot \cos(2\pi f_c t)$ — lec 12 Slide 44

$S(t) = 10\left[1 + 0.5\left(0.5\cos(100\cdot 2\pi t) + \cos(200\cdot 2\pi t)\right)\right]\cdot \cos(2\pi\,2000\,t)$

Spectrum $S(f) = \dfrac{A_c}{2}\left[\delta(f-f_c) + \delta(f+f_c)\right] + $

$\dfrac{k_a A_c}{2}\left[M(f-f_c) + M(f+f_c)\right]$

Amplitude:
100: $2.5\cdot 0.5\cdot 0.5$
200: $2.5\cdot 0.5$

$\leftarrow = 2.5$