Serial #

$\circ$

-1 point for not writing your serial #
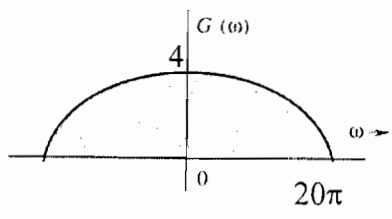
Name: K EY   Sec. 3

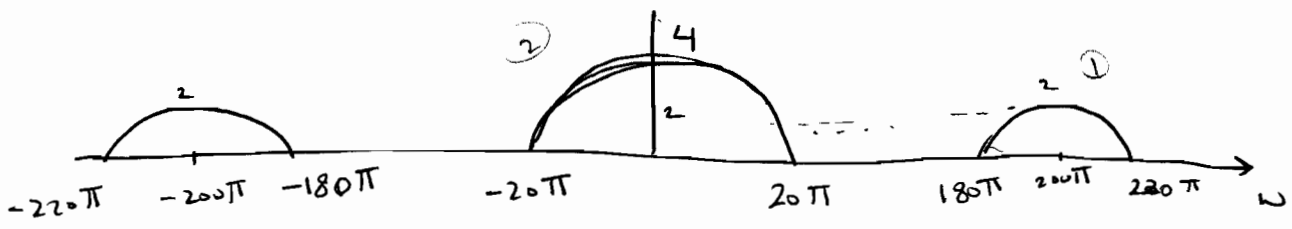1. The figure below shows Fourier spectrum of a signal $g(t)$

Sketch the spectrum of the signal $2g(t)\cos^2(100\pi t)$. Show all values on the sketch.

(Show your steps)

$$2g(t)\cos^2(100\pi t) = 2g(t)\frac{1}{2}\left[1+\cos 200\pi t\right]$$
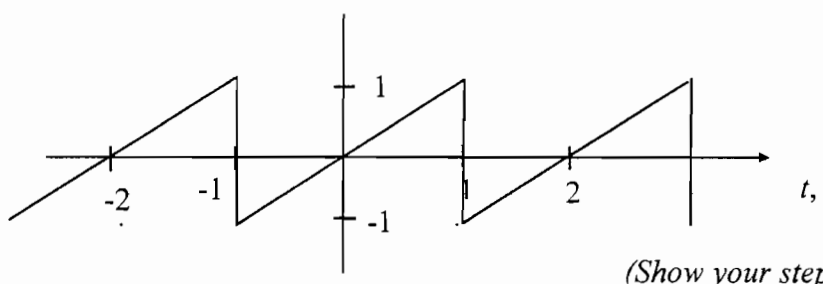
$$= g(t) + g(t)\cos 200\pi t$$

$$\Leftrightarrow G(\omega) + \frac{1}{2}\left[G(\omega-200\pi) + G(\omega+200\pi)\right]$$

2. For the signal shown below sketch the AM modulated signal if the modulation index =0.5.

$\mu = \dfrac{m_p}{A} = 0.5$

$m_p = 1$

$\Rightarrow A = 2$

(Show your steps & important value)

Good luck!