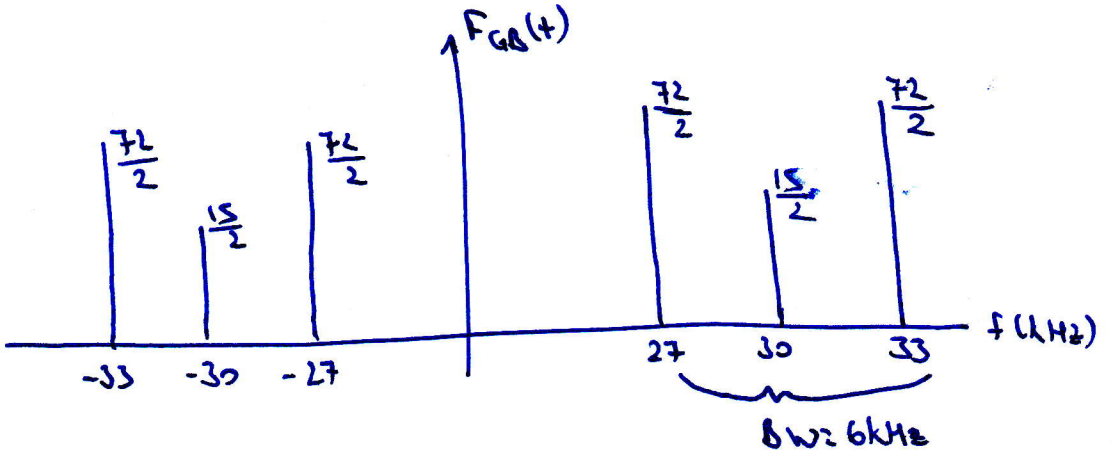
(b) $f_c = 30kHz \longrightarrow f_c(t) = 15\cos(2\pi.30.10^3 t)$

$$f_{GB}(t) = A_c[1 + mf(t)]\cos\omega_c t$$
$$= 15\left[1 + 0{,}8(12\cos 2\pi 30^3 t)\right]\cos 2\pi 30 10^3 t$$
$$= 15\cos 2\pi.30.10^3 t + (144\cos 2\pi 30^3 t)(\cos 2\pi 30 10^3 t)$$
$$= 15\cos 2\pi 30 10^3 t + \frac{144}{2}\cos 2\pi(30-3)10^3 t + \frac{144}{2}\cos 2\pi(30+3)10^3 t$$

$$= \underbrace{15\cos 2\pi 30 10^3 t}_{\text{taşıyıcı}} + \underbrace{72\cos 2\pi.27 10^3 t}_{\text{AYB}} + \underbrace{72\cos 2\pi.33 10^3 t}_{\text{ÜYB}}$$



(c) $P_c = \frac{\left(\frac{A_c}{\sqrt{2}}\right)^2}{R} = \frac{\left(\frac{15}{\sqrt{2}}\right)^2}{50} = 2{,}25\,W$

$$P_{YB} = \frac{\left(\frac{72}{\sqrt{2}}\right)^2}{50} + \frac{\left(\frac{72}{\sqrt{2}}\right)^2}{50} = 109{,}68\,W$$