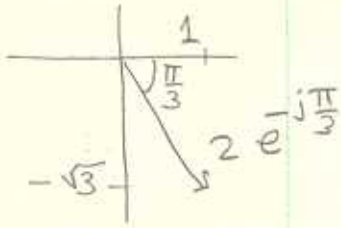
QUIZ SOLUTIONS 10/14/04

1.

(a) $z(t) = -2e^{j120\pi t} + 2e^{j(120\pi t - \pi/3)}$

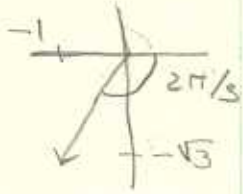
(b) $z(t) = \underbrace{\left(-2 + 2e^{-j\pi/3}\right)}_{X} e^{j120\pi t}$



$$X = -2 + 1 - \sqrt{3}j$$

$$= -1 - \sqrt{3}j$$

$$= 2e^{-j2\pi/3}$$

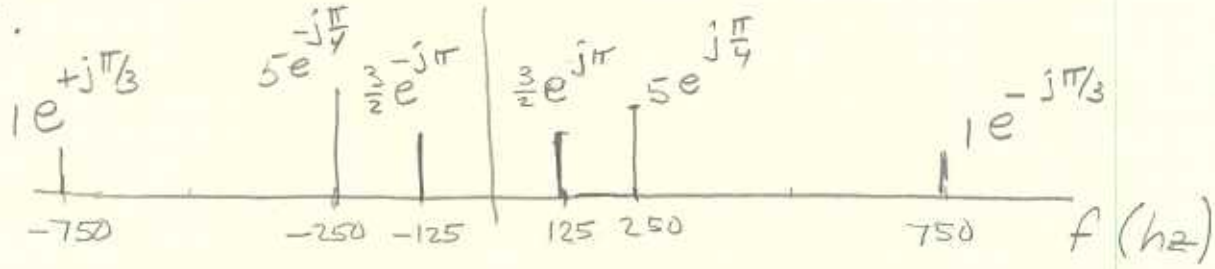


$$x(t) = \mathrm{Re}\ 2e^{-j2\pi/3} e^{j120\pi t}$$

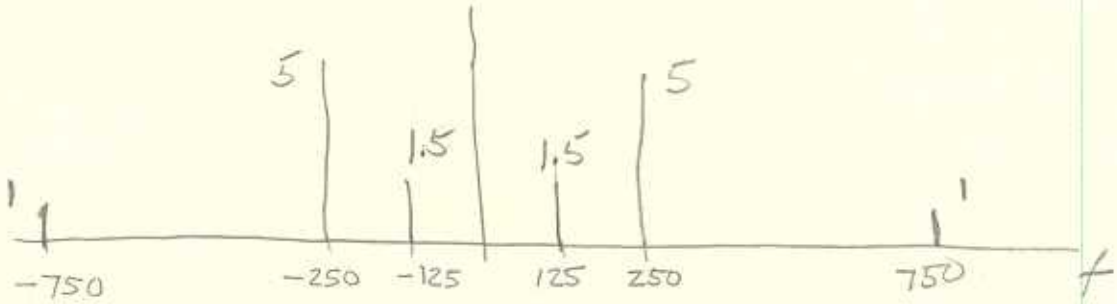
$$= 2\cos\left(120\pi t - 2\pi/3\right)$$

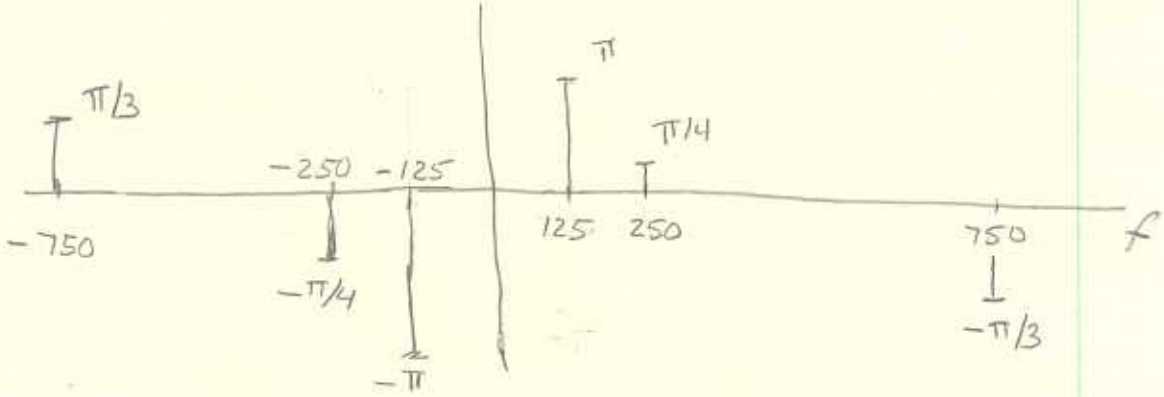
2.

(a)



(b)





(c)

Yes, periodic. $f_0 = 125$ hz.