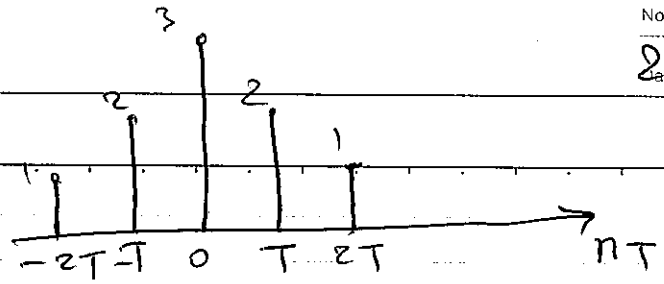
No.

Date 2012/7/1

3.6



$$X(w)=\sum_{n=-\infty}^{+\infty} x(nT)\,e^{-jwnT}$$

$$X(w)=e^{j2wT}+2e^{jwT}+3+2e^{-jwT}+e^{-j2wT}$$

$$X(w)=\left(e^{jwT}+1+e^{-jwT}\right)^2$$

Since: $S=1+q+q^2+\cdots+q^n$

$$-\left[qS=q+q^2+q^3+\cdots+q^n+q^{n+1}\right]$$

$$(1-q)S=1-q^{n+1}\longrightarrow S=\frac{1-q^{n+1}}{1-q}$$

If: $S=e^{jwT}+1+e^{-jwT}$

$$-\left[Se^{jwT}=1+e^{jwT}+e^{j2wT}\right]$$

$$S(1-e^{jwT})=e^{-jwT}-e^{j2wT}$$

$$S=\frac{e^{-jwT}-e^{j2wT}}{1-e^{jwT}}=\frac{e^{\frac{jwT}{2}}\left(e^{-j\frac{3wT}{2}}-e^{j\frac{3wT}{2}}\right)}{e^{\frac{jwT}{2}}\left(e^{-j\frac{wT}{2}}-e^{j\frac{wT}{2}}\right)}$$

$$S=\frac{\sin\frac{3wT}{2}}{\sin\frac{wT}{2}}$$

$$X(w)=S^2=\left(\frac{\sin\frac{3wT}{2}}{\sin\frac{wT}{2}}\right)^2$$