② 设置

已知连续时间信号 x(t) 的傅里叶变换为 $X(j\omega)$,且连续时间信号 $f(t)=x(3t-2)e^{-f2t}$ 。试求 f(t)的连续时间傅里叶变换 $F(j\omega)$ 。

一个LTI系统由下列微分方程给出,且已知系统最初是松弛的。

$$\frac{d^2y(t)}{dt^2} + 5\frac{dy(t)}{dt} + 4y(t) = \frac{dx(t)}{dt} - x(t)$$

求系统的单位冲激响应

$$f(u) = \chi_{(34-2)} e^{-j2t}$$

$$\chi_{(41)} = \chi_{(34-2)} e^{-j2t}$$

$$\chi_{(34-2)} = \frac{1}{3} \chi_{(\frac{jw}{3})} e^{-\frac{2}{3}jw}$$

$$\frac{1}{3} \chi_{(\frac{jw}{3})} = \frac{1}{3} \chi_{(\frac{jw}{3})} e^{-\frac{2}{3}j(w+2)}$$

主观题

某连续时间 LTI 系统的单位冲激响应为 $h(t) = \frac{\sin 2\pi t \sin 3\pi t}{\pi t^2}$, 求系统对下列输入信号的响

应y(t)。

$$1. \quad x(t) = \cos \pi t + 2\sin \frac{1}{2}\pi t$$

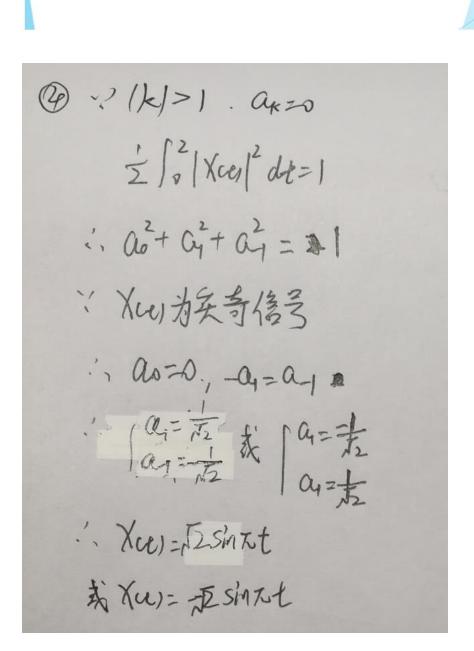
2.
$$x(t) = \cos \pi t \cdot \cos 5\pi t$$

3.
$$x(t) = \sum_{k=-\infty}^{+\infty} \delta(t-k)$$

心设置

现对一信号x(t)给出如下信息:

- (1). x(t)是实、奇信号;
- (2). x(t) 是周期的,周期 T=2, 傅立叶系数为 a_k ;



主观题

◇ 设置

某连续时间 LTI 系统的单位冲激响应为 $h(t) = \frac{\sin 2\pi t}{\pi t}$, 当系统的输入为

$$x(t) = \sum_{k=-\infty}^{+\infty} \delta(t - \frac{10}{3}k)$$
时, 求系统的输出响应 $y(t)$ 。

主观题

设设置

一个离散时间周期信号 $x[n]=1+\cos\left(\frac{2\pi}{7}n\right)+\sin\left(\frac{4\pi}{5}n\right)$ 。

- (1) 求x[n]的傅里叶级数系数 a_k 。
- (2) 某离散时间 LTI 系统的单位脉冲响应 $h[n] = \frac{\sin \frac{3\pi}{4}n}{n\pi}$, 求第 1 问中的 x[n] 通过该系统后的响应 y[n]。

⑤
$$X_{CN} = 1 + \cos \frac{27}{7}n + \sin \frac{49}{5}n$$

(1) $(N_1 = 7 + N_2 = 5 + N_3 = 35)$, $W_0 = \frac{17}{35}$
 $(A_0 = 1 + \alpha_5 = \alpha_5 = \frac{1}{2})$
 $(A_1 = -\alpha_4 + \alpha_5 = \frac{1}{2})$
(2) $A_{CO} = \frac{\sin \frac{27}{35}n}{n^{\frac{1}{35}}}$
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