

Problem 8-12

$$m_f = \frac{f_s}{f_1}$$

There are $\frac{m_f}{2}$ pulses in $1/2$ cycle of f_1 .

$$K = \left(\frac{m_f}{2} \cdot t_{\Delta} V_d \right) / \frac{T_1}{2} \quad \text{where} \quad T_1 = \frac{1}{f_1}$$
$$= (m_f f_1) t_{\Delta} V_d = f_s t_{\Delta} V_d$$

From Fourier analysis

$$\therefore (\hat{V}_{A0})_h = \frac{4}{\pi h} t_{\Delta} V_d f_s \quad \text{where} \quad h = 1, 3, 5, \dots$$