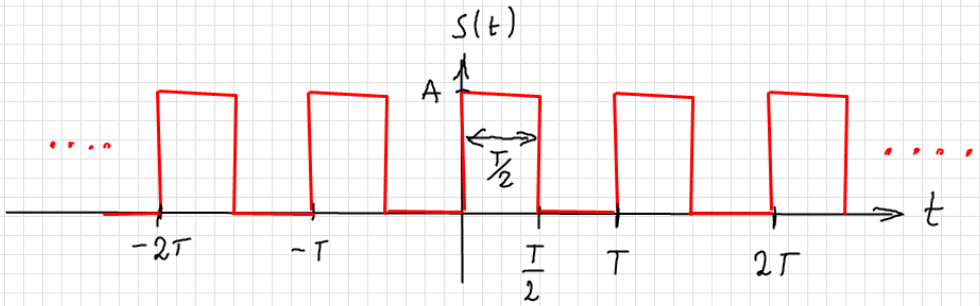
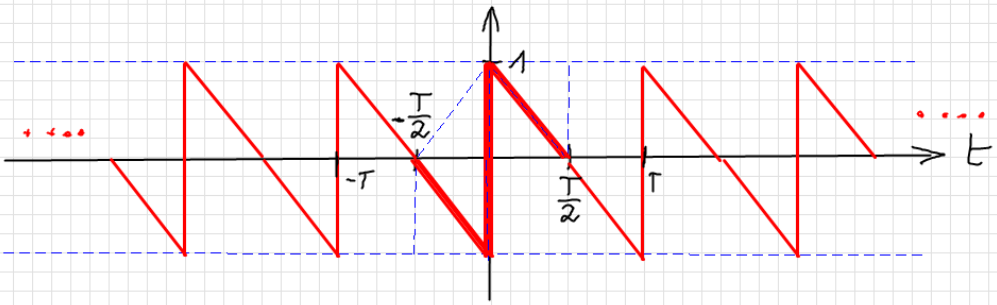
Aufgabe 1 :

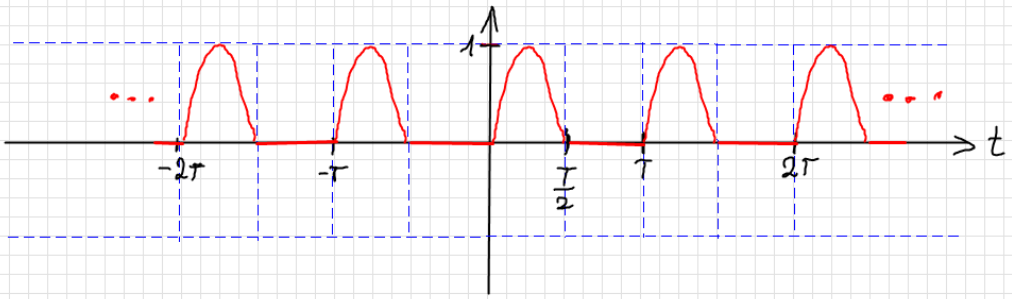
a) $A \cdot rect\left(\frac{t-\frac{T}{4}}{\frac{T}{2}}\right) * \sum_{n=-\infty}^{\infty} \delta(t-nT)$



b) $\left\{\wedge\left(\frac{t}{T/2}\right) \cdot \left[rect\left(\frac{t-\frac{T}{4}}{T/2}\right) - rect\left(\frac{t+\frac{T}{4}}{T/2}\right)\right]\right\} * \sum_{n=-\infty}^{\infty} \delta(t-nT)$

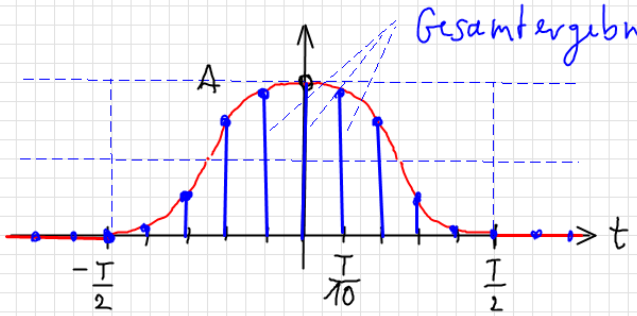


c) $\left[\sin\left(2\pi\frac{t}{T}\right) \cdot rect\left(\frac{t-\frac{T}{4}}{\frac{T}{2}}\right)\right] * \sum_{n=-\infty}^{\infty} \delta(t-nT)$



d)

$$\left[\frac{A}{2}\cdot\left\langle\cos\left(2\pi\frac{t}{T}\right)+1\right\rangle\cdot rect\left(\frac{t}{T}\right)\right]\cdot\sum_{n=-\infty}^{\infty}\delta\left(t-n\frac{T}{10}\right)$$

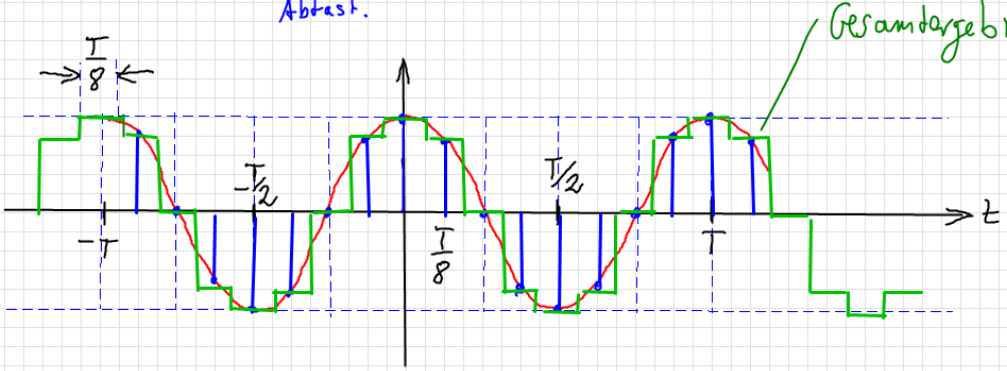


Gesamtergebnis: abgetastete und nicht periodische Funktion

e)

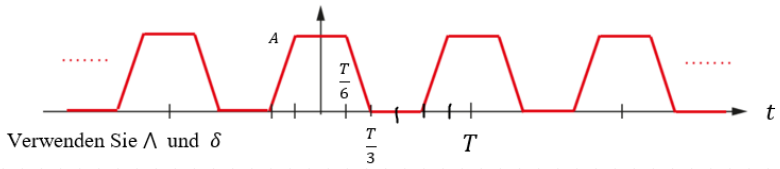
$$\left[\cos\left(2\pi\frac{t}{T}\right)\cdot\sum_{n=-\infty}^{\infty}\delta\left(t-n\frac{T}{8}\right)\right]*rect\left(\frac{t}{T/8}\right)$$

Abtast.



Aufgabe 2:

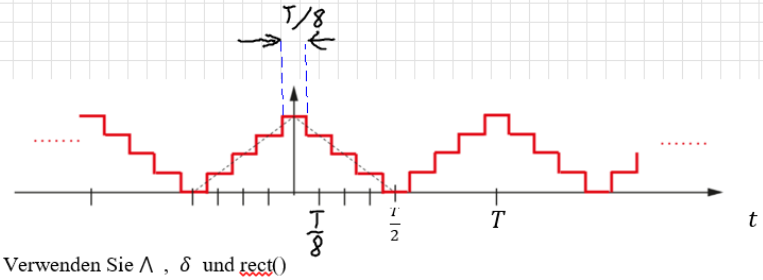
a)



Verwenden Sie Λ und δ

$$A \cdot \left[\Lambda\left(\frac{t + T/6}{T/6} \right) + \Lambda\left(\frac{t}{T/6} \right) + \Lambda\left(\frac{t - T/6}{T/6} \right) \right] * \sum_{n=-\infty}^{\infty} \left[\delta(t - n \cdot T) \right]$$

b)



Verwenden Sie Λ , δ und rect()

$$\left\{ \left[\Lambda\left(\frac{t}{T/2} \right) \cdot \sum_{n=-\infty}^{\infty} \delta\left(t - n\frac{T}{8}\right) \right] * \sum_{n=-\infty}^{\infty} \delta(t - nT) \right\} * \mathrm{rect}\left(\frac{t}{T/8} \right)$$

Abtastung

Periodisierung

auch vertauschbar