Discussion problem assignment:

第一题：

Prove the following result:

$$\sum_{n=-\infty}^{+\infty}\delta(t-nT)=\frac{1}{T}+\sum_{k=1}^{+\infty}\frac{2}{T}\cos\left(\frac{2k\pi t}{T}\right)$$

第二题：

Suppose that the unit impulse response of an LTI system is

$$h(t)=1,\ \text{for}\ -2<t<+2;\ \ 0,\ \text{otherwise}$$

1. Determine the system's frequency response.

2. Find system's output for a periodic input signal $x(t)=1+\cos(\pi t)$