Exercise 4. Prove the following variant of the Poisson Summation Formula. *If $f \in \mathcal{S}$, $\delta > 0$ and $\alpha \in \mathbf{R}$, then*

$$\sum_{n=-\infty}^{\infty} f\left(\frac{x+n}{\delta}\right) e^{-2\pi i n\alpha/\delta} = \delta \sum_{m=-\infty}^{\infty} \widehat{f}(\delta m + \alpha) e^{2\pi i x(\delta m + \alpha)/\delta}.$$

(Hint: Find a function $f_1(x)$ such that $\widehat{f_1}(m) = \widehat{f}(\delta m + \alpha)$.)