Die Einführung von $K(y)$ ergibt

$$\sum_{\lambda_n \leqq \tau} \frac{\alpha_n}{\lambda_n^{\frac{3}{4}}} \cos\left(x\sqrt{\lambda_n} - \frac{3\pi}{4}\right)$$

$$= \frac{\pi\sqrt{\Delta}}{2}\delta\left(-\int_0^\tau y \frac{d}{dy}\left(\frac{\cos\left(x\sqrt{y}-\frac{3\pi}{4}\right)}{y^{\frac{3}{4}}}\right)dy + \tau^{\frac{1}{4}}\cos\left(x\sqrt{\tau}-\frac{3\pi}{4}\right)\right)$$

$$-\int_0^\tau K(y)\frac{d}{dy}\left(\frac{\cos\left(x\sqrt{y}-\frac{3\pi}{4}\right)}{y^{\frac{3}{4}}}\right)dy + \frac{K(\tau)\cos\left(x\sqrt{\tau}-\frac{3\pi}{4}\right)}{\tau^{\frac{3}{4}}}.$$

Hierin ist erstens

$$-\int_0^\tau y \frac{d}{dy}\left(\frac{\cos\left(x\sqrt{y}-\frac{3\pi}{4}\right)}{y^{\frac{3}{4}}}\right)dy + \tau^{\frac{1}{4}}\cos\left(x\sqrt{\tau}-\frac{3\pi}{4}\right)$$

$$= \left\{-y\frac{\cos\left(x\sqrt{y}-\frac{3\pi}{4}\right)}{y^{\frac{3}{4}}}\right\}_0^\tau + \int_0^\tau \frac{\cos\left(x\sqrt{y}-\frac{3\pi}{4}\right)}{y^{\frac{3}{4}}}dy$$

$$+ \tau^{\frac{1}{4}}\cos\left(x\sqrt{\tau}-\frac{3\pi}{4}\right)$$

$$= \int_0^\tau \frac{\cos\left(x\sqrt{y}-\frac{3\pi}{4}\right)}{y^{\frac{3}{4}}}dy = \frac{2}{x^{\frac{1}{2}}}\int_0^{x\sqrt{\tau}} \frac{\cos\left(t-\frac{3\pi}{4}\right)}{t^{\frac{1}{2}}}dt,$$

was bei wachsendem τ gleichmäßig für $x \geqq x_0$ gegen

$$\frac{2}{x^{\frac{1}{2}}}\int_0^\infty \frac{\cos\left(t-\frac{3\pi}{4}\right)}{t^{\frac{1}{2}}}dt$$

strebt.