Also X in $[0, \frac{\pi}{2}]$ gleichverteilt.

Suche Verteilung von $Y := c \cdot \sin 2X$.

$T: x \mapsto \sin 2x$ ist $\nearrow$ in $[0, \frac{\pi}{4}]$, $\searrow$ in $[\frac{\pi}{4}, \frac{\pi}{2}]$

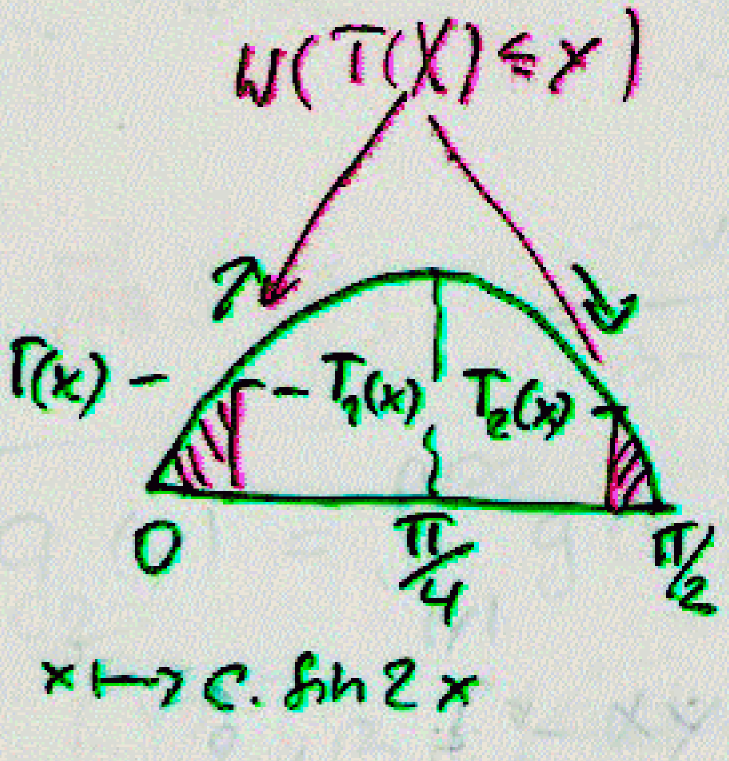
$$h_1(y) = \frac{1}{2} \arcsin \frac{y}{c}, \quad h_2(y) = \frac{\pi}{2} - \frac{1}{2} \arcsin \frac{y}{c}$$

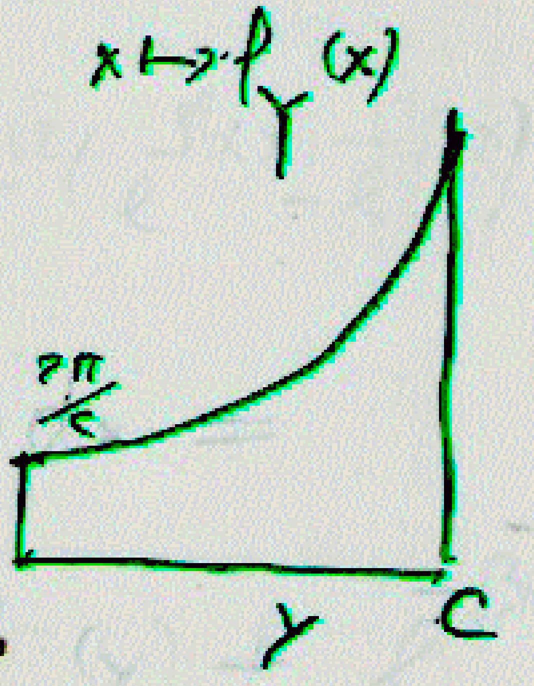
$$\left| \frac{d h_1(y)}{dy} \right| = \left| \frac{d h_2(y)}{dy} \right| = \frac{1}{2c\sqrt{1 - (y/c)^2}}$$

Einsetzen: $f_X(x) = \frac{2}{\pi} 1_{[0, \pi/2]}(x)$ liefert

$$f_Y(y) = \frac{1}{c\pi} \left[\frac{1}{\sqrt{1 - (y/c)^2}} + \frac{1}{\sqrt{1 - (y/c)^2}} \right] 1_{[0,c]}(y)$$

$$[c \sin 2 \cdot \tfrac{\pi}{4} = c = \max.] \quad \Big| = \frac{2}{c\pi} \frac{1}{\sqrt{1 - (y/c)^2}} 1_{[0,c]}(y)$$





! Keine Gleichverteilung auf $[0, c]$!