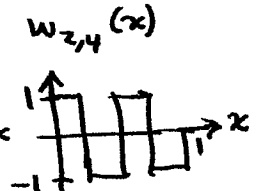
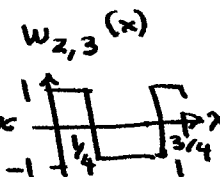
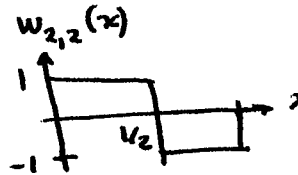
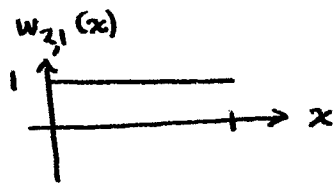
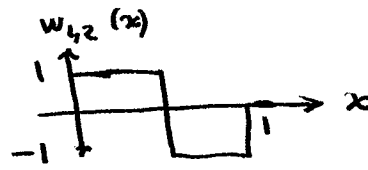
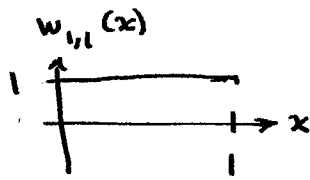
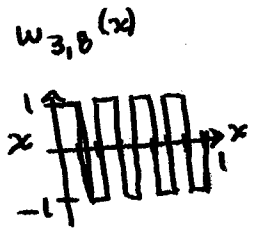
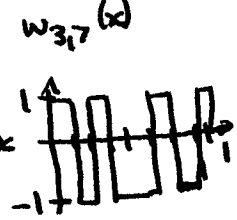
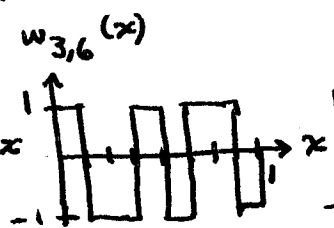
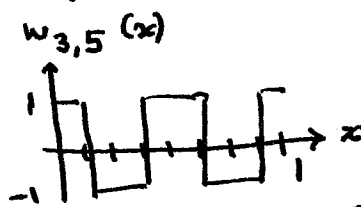


ex: Walsh functions [1]



$$w_{3,n}(x) = w_{2,n}(x) \quad \text{for } n = 1, \dots, 4$$



Orthogonality:

$$\text{Domain } D = [0, 1]$$

$$w(x) = 1$$

$$\langle w_{k,m}(x), w_{k,n}(x) \rangle \equiv \int_0^1 w_{k,m}(x) w_{k,n}(x) dx = \delta_{mn}$$

(inner product)

$$\text{where } \delta_{mn} = \begin{cases} 1 & m=n \\ 0 & m \neq n \end{cases}$$

Note: Walsh functions are orthonormal.

ref: [1] Weisstein, Eric W. "Walsh Function." From MathWorld—A Wolfram Web Resource.
<http://mathworld.wolfram.com/WalshFunction.html>