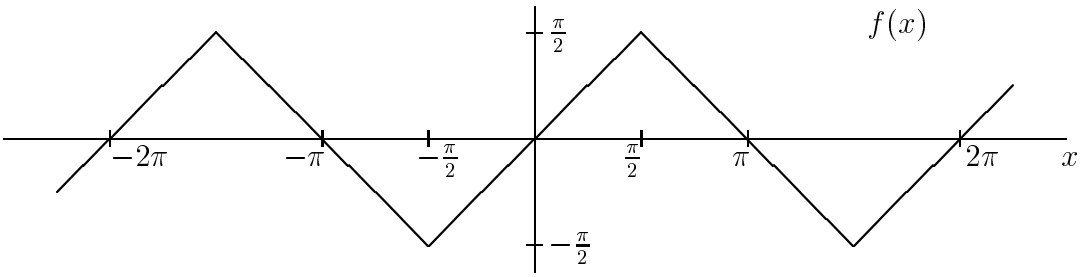
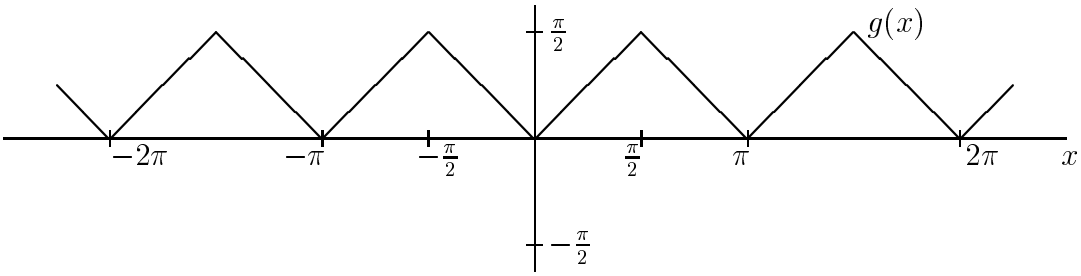
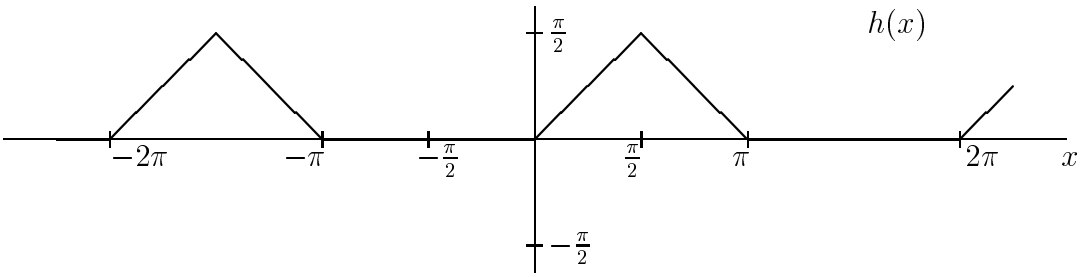
More Fourier series

Last time you calculated a Fourier series of the form $\sum_{n=0}^{\infty} a_n \cos(nx) + \sum_{n=1}^{\infty} b_n \sin(nx)$ for the function f shown in the diagram.



Now consider the functions g and h having the following graphs.





1. Determine the analogous Fourier series for the functions g and h.

2. Observe that f, g, and h all agree when x is between 0 and π. Consequently, the three *different* Fourier series must all be *equal* when $0 < x < \pi$. Does this make sense?