Consider a triangle wave of amplitude 1 and period $T$.

1) Calculate the Fourier coefficients for this triangle wave by hand.

2) Use these coefficients in the Maple worksheet (fourier_triangle.mws) to see how well the Fourier series approximates the triangle wave. Make a plot showing the comparison in the case where the Fourier series includes the first 5 harmonics.

3) Compare the coefficients found in (1) with the coefficients for a square wave. Discuss how they are similar and how they are different in light of the fundamental similarities and differences of square and triangle waves.