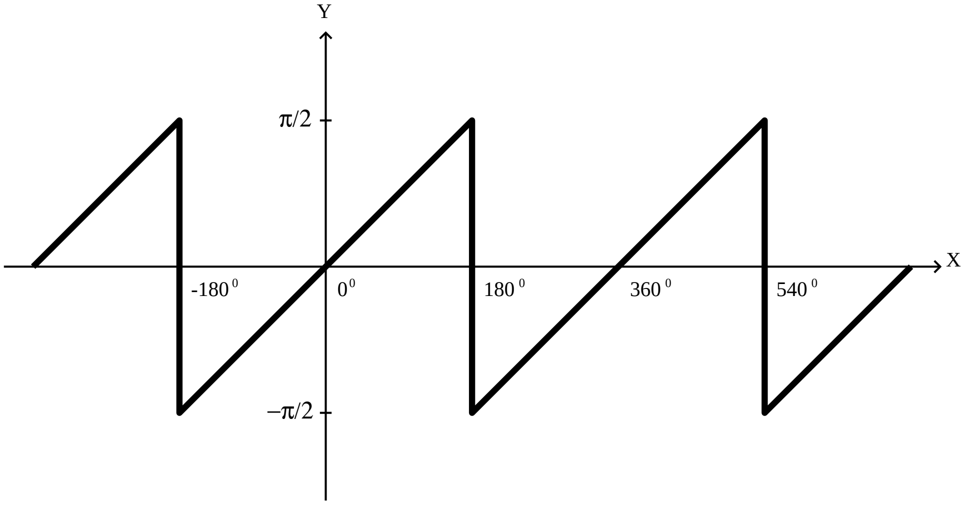
# Homework #2 (4190.410)

## Due: October 6, 2004

A graph of a "Ramp Wave" is shown below. Four curves, representing successive Fourier series approximations to a ramp wave, are to be ploted on the same set of axes.




The four curves are given by the following equations

$$
\begin{aligned}
y_1 &= \sin(x) \\
y_2 &= \sin(x) - \frac{1}{2}\sin(2x) \\
y_3 &= \sin(x) - \frac{1}{2}\sin(2x) + \frac{1}{3}\sin(3x) \\
y_4 &= \sin(x) - \frac{1}{2}\sin(2x) + \frac{1}{3}\sin(3x) - \frac{1}{4}\sin(4x),
\end{aligned}
$$

where $x$ goes from $-180°$ to $540°$.

Write an OpenGL program that does the following:

1. Print your name, student ID number, course (e.g., CSE4190.410), and semester (e.g., "Fall 2004").
2. Plot the $x$ and $y$ axes with tic marks.
3. Plot the four curves $y_1$, $y_2$, $y_3$, and $y_4$ on that one set of axes. Distinguish these curves using different dashed patterns.
4. Plot the ramp wave that they are approximating on the same set of axes. Use ticker lines to make this stand out.