

Consider the function:

$$f(x) = \begin{cases} 0 & 0 < x < \frac{2\pi}{3} \\ D & \frac{2\pi}{3} < x < \frac{4\pi}{3} \\ 0 & \frac{4\pi}{3} < x < 2\pi \end{cases}$$

1. You can think of this function as periodic, with period  $2\pi$ . Represent this function as a Fourier series.
2. Using your favorite plotting program (or by hand), plot an approximation containing three nonzero terms.
3. Make a graph of your coefficients (the spectrum).