PROBLEM:

For the *Dirichlet* function:

$$\mathcal{D}(\hat{\omega}, 9) = \frac{\sin(4.5\hat{\omega})}{\sin(\frac{1}{2}\hat{\omega})}$$

(a) Make a plot of $\mathcal{D}(\hat{\omega}, 9)$ over the range $-2\pi \leq \hat{\omega} \leq +2\pi$. Label all the zero crossings.

(b) Determine the period of $\mathcal{D}(\hat{\omega}, 9)$. Is it equal to 2π; why, or why not?

(c) Find the maximum value of the function.

NOTE: the *Dirichlet* function is defined via: $\mathcal{D}(\hat{\omega}, L) = \dfrac{\sin(L\hat{\omega}/2)}{\sin(\frac{1}{2}\hat{\omega})}$

In MATLAB consult help on `diric` for more information.