

Name:

1. Are each of the following functions piecewise continuous on the interval  $[-\pi, \pi]$ ?

$$(a) \ g(x) = \begin{cases} -\frac{1}{x^2} & \text{if } x \neq 0 \\ 0 & \text{if } x = 0 \end{cases}$$

$$(b) \ h(x) = \begin{cases} e^{-1/x^2} & \text{if } x \neq 0 \\ 0 & \text{if } x = 0 \end{cases}$$

2. Find the Fourier series for the following function, using  $L = \pi$ .

$$f(x) = \begin{cases} 2 & \text{if } x > 0 \\ 0 & \text{if } x = 0 \\ -2 & \text{if } x < 0 \end{cases}$$