Math 54, Quiz 11 Sections 202/203 GSI Carter

Name:

1. For each of the following statements, write the word "true" or "false."

   (a) Let $f(x)$ be an odd function and $g(x)$ be an even function. Then $f(x)g(x)$ is an odd function.

   (b) Let $f(x)$ be an odd function and $g(x)$ be an even function. Then $f(x) + g(x)$ is an odd function.

2. Find the Fourier series for the function $f(x)$ defined by

$$f(x) = \begin{cases} -x^2 + \pi^2 & \text{if } -\pi \leq x \leq 0 \\ x^2 - \pi^2 & \text{if } 0 < x < \pi \end{cases}$$

   and $f(x + 2\pi) = f(x)$ for any x.