Homework 11  
Due Wednesday April 9, 2008

From Guillemin-Pollack: p. 103–107, # 17.

From Guillemin-Pollack: p. 116–119, # 1, 2a, 10, 14.

Extra problem:
Define the torus $T$ as a quotient of $\mathbb{R} \times \mathbb{R}$, where $(a, b) \sim (c, d)$ if $a - c$ and $b - d$ are both integers.
Define the circle $S^1$ as a quotient of $\mathbb{R}$, where $a \sim b$ if $a - b$ is an integer.
Given an integer $m$, let $f_m : S^1 \rightarrow T$ be the function given by the formula $f_m(a) = (a, ma)$, and let $g_m : S^1 \rightarrow T$ be the function given by the formula $g_m(a) = (ma, a)$.
Compute $I(f_m, f_n)$.
Hint: Your solution does not have to be completely rigorous.