Problem 1. Assume \( f \) has poles \( b_1, \ldots, b_k \) with residues \( r_1, \ldots, r_k \), and \( |zf(z)| \to 0 \) as \( z \to \infty \). Show that

\[
\sum_{-\infty}^{\infty} f(n) = -\sum_{j=1}^{k} (\pi \cot \pi b_j) r_j.
\]

Problem 2. Let \( a \neq 0 \). Find the explicit values of

(a) \[
\sum_{0}^{\infty} \frac{1}{n^2 + a^2},
\]

(b) \[
\sum_{0}^{\infty} \frac{1}{n^4 + a^4}
\]