Quiz 2

1. Let

$$a_n = \frac{4^n}{4^n + n}.$$

(a) Does the sequence $\{a_n\}$ converge or diverge? If it converges, find the limit.

(b) Does the series $\sum_{n=1}^{\infty} a_n$ converge or diverge? Justify your answer using one of the convergence tests from class.

2. Determine whether the given series converge or diverge. Justify your answer fully using a convergence test from class indicating (A) the convergence test you used, (B) any work required to use the test, and (C) a statement indicating how the test was used. Your work (not the answer itself) will count for a majority of the points on each problem.

(a) $\displaystyle\sum_{n=2}^{\infty} \frac{n}{n^3 - 1}$

(b) $\displaystyle\sum_{n=1}^{\infty} \frac{\tan^{-1}(n)}{1 + n^2}$