

MATH 166
SUMMER 2012
QUIZ 17

1. Determine if the following sequences converge.

a) (5 pt) $(\frac{\tan^{-1}(n)}{2n+1})_{n=1}^{\infty}$.

b) (5 pt) $(\ln(2n \tan(\frac{3}{n})))_{n=1}^{\infty}$.

c) (5 pt) $(\sqrt{n^2 + 1} - \sqrt{n^2 + 4n + 1})_{n=1}^{\infty}$.

2. (5 pt) Let $f(x)$ be a function with the property that $f'(x) > 0$ for all $x > 0$. If $f(x)$ has a horizontal asymptote (to the right) then show that the sequence $(a_n)_{n=1}^{\infty} = (f(n))_{n=1}^{\infty}$ converges.