

Math 222 Exam 2 Partial Review

Name: _____

October 20-22, 2014

Directions: Work in groups to complete the following problems.

1. (a) If $\{a_n\}_{n=0}^{\infty}$ is a sequence of real numbers and L is a real number, what is the definition of $\lim_{n \rightarrow \infty} a_n = L$?
 - (b) Let $a_n = \arctan(n)$
 - i. Show that a_n is an increasing sequence.
 - ii. If it exists, what is $\lim_{n \rightarrow \infty} a_n$
2. Evaluate the Integrals

(a) $\int \frac{x+2}{x(x^2-1)} dx$

(b) $\int \frac{dx}{(x^2+4)^2}$

(c) $\int \frac{x^2+2x+1}{\sqrt{3-x^2-2x}} dx$

(d) $\int_0^1 \ln x$

(e) $\int_1^{\infty} \frac{1}{2x^2+x} dx$