

MA104 Lesson 4

Limit of a Function II

Thursday or Friday, 16 or 17 January, 2008

Outline

Admin

Last Class

Limit of a Function II

Course Guide

Limits of a Function II

Definitions

An Example Problem

Continuity and Limits of Functions

Look Forward - Continuity

Course Guide

Quiz

Quiz 2 - You will have 10 minuets

Admin

1. By the end of the week make an appointment for AI with me on Outlook - The appointment can be over the next three weeks it just needs to be scheduled

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2. Mathematica 6.0 working by end of week

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1. By the end of the week make an appointment for AI with me on Outlook - The appointment can be over the next three weeks it just needs to be scheduled
2. Mathematica 6.0 working by end of week
3. Course Guide - Show them to me - Or get them by the end of the week

Birthday Cadet

Who's Birthday is It?

Birthday Cadet

Who's Birthday is It?

1. This cadet is from a city in Iowa!

Birthday Cadet

Who's Birthday is It?



Birthday Cadet

Who's Birthday is It?

3. Yes it is Burlington, Iowa

Birthday Cadet



1.

Birthday Cadet

2. This cadet is involved in the fishing club and women's soccer

Birthday Cadet

3.



Birthday Cadet

4. Matthew Dieterich turned 22 today

Birthday Cadet

Who's Birthday is It?

Birthday Cadet

Who's Birthday is It?

1. This cadet is from a city in Indiana!

Birthday Cadet

Who's Birthday is It?



2.

Birthday Cadet

Who's Birthday is It?

3. Yes it is West Harrison, Indiana

Birthday Cadet



1.

Birthday Cadet

2. This cadet is involved in volleyball

Birthday Cadet

3.



Birthday Cadet

4. Karyn Powell turns 19 on 20 January

Birthday Cadet

Who's Birthday is It?

Birthday Cadet

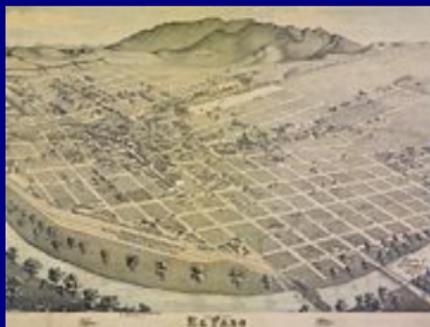
Who's Birthday is It?

1. This cadet is from a city in Texas!

Birthday Cadet

Who's Birthday is It?

2.



Birthday Cadet

Who's Birthday is It?

3. Yes it is El Paso, Texas

Birthday Cadet

1.



Birthday Cadet

2. This cadet is involved in Judo and the Catholic Chapel Choir

Birthday Cadet

3.



Birthday Cadet

4. Awbrey Lowe turns 18 Today

Limit of a Function I

Questions?

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Objectives

1. Understand what it means for a function to have an infinite limit.
2. Be able to determine when a function decreases/increases without bound.

READ

1. Stewart: Section 2.2, pages 94-96 (start at Infinite Limits).

THINK ABOUT

1. How are infinite limits and vertical asymptotes related?

DO Problems

1. Section 2.2/ 3, 8, 9, 25, 26

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Definitions

1. Definition 4, pg. 94
2. Definition 5, pg. 95
3. Definition 6, pg. 95
4. Definition red box at bottom of pg. 96

Definitions

1. Limit Laws from pg. 99
2. Limit Laws for Sequences pg. 678

An Example Problem

1. If $f(x) = \frac{1}{x^2}$, what happens as x gets close to zero from both sides of zero?

An Example Problem

1. If $f(x) = \frac{1}{x^2}$, what happens as x gets close to zero from both sides of zero?
2. Find the limit of $\lim_{x \rightarrow 3^+} \frac{2x}{x-3}$ and $\lim_{x \rightarrow 3^-} \frac{2x}{x-3}$

Mathematica Code

1. Limit in Mathematica

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Continuity and Limits of Functions

How does it tie together?

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Lesson 5 - Continuity

1. OBJECTIVES:

- 1.1 Understand the mathematical and geometric definitions of continuity.
- 1.2 Determine if a function is continuous, both at a point and on an interval.
- 1.3 Understand the three different types of discontinuities at a point: removable, jump, and infinite.
- 1.4 Understand the Intermediate Value Theorem and its applications.

2. READ:

- 2.1 Stewart: Section 2.5, pages 119-127.
- 2.2 Student Notes.

3. THINK ABOUT:

- 3.1 Why is it important for a function to be continuous?
- 3.2 What is the difference between a function being continuous at a point and a function being continuous on an interval?
- 3.3 What is an example of a discontinuous quantity in your life?
- 3.4 What is useful about the Intermediate Value Theorem? How can we use it?

4. DO:

- 4.1 Section 2.5/ 3, 4, 7, 8, 16, 37

Questions?

Questions?