Math 1431

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http://www.math.uh.edu/~almus

COURSE WEBSITE:

http://www.math.uh.edu/~almus/1431_sp17.html

and

www.casa.uh.edu

Calendar and announcements will be updated on CASA!
Visit CASA regularly for announcements and course material!

Read the syllabus.
Policies-

- Read the syllabus!
- Must have a CASA account. Everyone has free access until the access code deadline.
- Purchase the access code from UH Bookstore by the end of second week or else you’ll lose access to CASA. No make ups for assignments you missed due to not having access.
- Must attend both lectures and labs.

CASA:

All online assignments (quizzes, practice tests, EMCFs) will be available at CASA. Textbook link is at CASA. Watch the due dates carefully – no make ups!

TESTS

Test 1 is over the prerequisite material. Take practice test 1 first to see what to expect on test 1. Reserve a seat for Test 1 ASAP.

Tests 1,2,3,4 will be taken at CASA Testing Center by reservation. Reservation is at CASA website (under the Proctored Exams tab); will open 2 weeks prior to each test.

Final will be taken at CASA by reservation. No exemption from the final; no early finals – plan accordingly.

Make ups: No make ups on any assignments/tests. If you miss a test, you will get a 0 on it and your raw score on the final will be used to replace one missed test.

No calculators on any exams.

LABS

Attend the lab you’re registered for in PeopleSoft. Know your TA’s name and email. Attendance will be taken regularly. Turn in Homework in lab, work on Class Work and take “written quizzes” in lab.

We will go over the syllabus on the first day and also cover section 1.2 from your textbook. I assume you read the syllabus before the first class. If you have any questions, come and see me or email me at almus@math.uh.edu.
Section 1.1 - A Review of Functions

Homework: Read Section 1.1 from your textbook.

You need to know:

- Finding domain & range of certain functions.
- Basic properties and graphs of polynomials, rational functions, exponential functions, logarithmic functions.
- Everything about the six basic trig functions (their properties and graphs, basic identities).
- Inverse Trig Functions.

Polynomial Functions:

Rational Functions:

Exponential Functions:

Logarithmic Functions:

Basic Trig Functions:

Inverse Trig Functions:
Section 1.2 – An Intuitive Introduction to Limits

Suppose that a function $f$ has the following graph.

We want to describe the behavior of $f$ when $x$ is very close to 1.

- As $x$ approaches 1 from the left (that is, $x$ is very close to 1 but $x < 1$), what function value do we expect to get?
- As $x$ approaches 1 from the right (that is, $x$ is very close to 1 but $x > 1$), what function value do we expect to get?
- As $x$ approaches 1, what function value do we expect to get?
The question is; as \( x \) approaches 1 (symbolized as: \( x \to 1 \)), is there a target number that \( f(x) \) is approaching?

We say that 2 is the limit of \( f(x) \) as \( x \) approaches 1. This is written as:

**Informal Definition:** We say that the limit of \( f(x) \) as \( x \) approaches \( c \) is the real number \( L \), if the \( y \)-coordinates of the points \( (x, f(x)) \) are getting closer and closer to a certain target number \( L \) as \( x \) approaches \( c \) from each side of \( c \). This is written as:

\[
\lim_{x \to c} f(x) = L
\]
Example:

\[
\begin{align*}
\lim_{x \to 3} f(x) &= \\
\lim_{x \to 4} f(x) &= \\
\lim_{x \to 0} f(x) &= 
\end{align*}
\]

We can describe the behavior of \( f(x) \) as \( x \) approaches 0 in terms of one-sided limits.

Here, 2 is the limit of \( f(x) \) as \( x \) approaches 0 from the left (or from below):

And, 4 is the limit of \( f(x) \) as \( x \) approaches 0 from the right (or from above):
This example illustrates a very important fact about the existence of limit.

**Fact:** \( \lim_{x \to c} f(x) \) exists if and only if \( \lim_{x \to c^-} f(x) \) and \( \lim_{x \to c^+} f(x) \) both exist and are equal.
Example: Given the graph of \( f \), evaluate the following limits, if they do exist.

\[
\begin{align*}
\lim_{x \to -2} f(x) &= \\
\lim_{x \to 0^+} f(x) &= \\
\lim_{x \to 0^-} f(x) &= \\
\lim_{x \to 0} f(x) &= \\
\lim_{x \to 5^-} f(x) &= \\
\lim_{x \to 5^+} f(x) &= \\
\lim_{x \to 1^+} f(x) &= \\
\lim_{x \to 1^-} f(x) &= \\
\lim_{x \to 1} f(x) &= \\
\lim_{x \to 3} f(x) &= \\
\lim_{x \to 5} f(x) &=
\end{align*}
\]
Homework: Read Sections 1.1 and 1.2 from your textbook.

Homework #1 is posted on CASA.

Check CASA regularly for announcements.

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