Carlos Cristián Martínez
Teaching Portfolio.

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December, 2005

MAC 1075

Fall 2005

Introduction to Data Processing

Instructor: Carlos Martínez

CP

Course Profile

November, 2005

Summary.

This course introduces students to the broad field of Computer Science. In its first part it provides a historical perspective on the main issues that have led to the science taking shape as we know it today. Next, it provides students with an accessible presentation of the Software/Hardware paradigm, ranging from Computer Architecture to Programming Languages. Finally, students are introduced to Microsoft Office (Word, Excel, Power Point, Access) and Microsoft Front Page as a set of tools to analyze data.

I based my lecturing on chalkboard, slide shows, and some software demonstrations. The following example illustrates my use of these teaching tools; To introduce *Microsoft Excel*[1], I installed *VisiCal* [2]and test it with few basic calculation, and later repeat these calculations using Excel. This experience offered students the opportunity to confront performance between an original, perhaps prototypical version of a spreadsheet software, which has a limited interface and command-line language, compared the Excel spreadsheet which has graphical user interface, toolbars and menus. Besides introducing Excel, this exercise provides a lesson on how much software has evolved in a short frame of time.

The course materials were available to students through Blackboard; among these were *Lectures Outlines (Figure 3)*, usually consisting of working examples, slides, and layout of basic definitions; *Homework/Projects Handouts (Figure 4)* and *Practice Tests (Figure 6)*. Another source of materials was provided through suggested *Web page links*.

Textbooks.

- *Discovering Computers 2005, A Gateway to Information (Web Enhanced)* by G. B. Shelly, T. J. Cashman and M. E. Vermaat.
- *Microsoft Office 2000, Introductory Concepts and Techniques.* G. B. Shelly, By T.J. Cashman and M. E. Vermaat.

[1]Microsoft Excel, popularly known spreadsheet software.

[2]VisiCal was the first spreadsheet program, written by Dan Bricklin and Bob Frankton in 1979. The program and basic manual are available from Dan Bricklin's Web page.

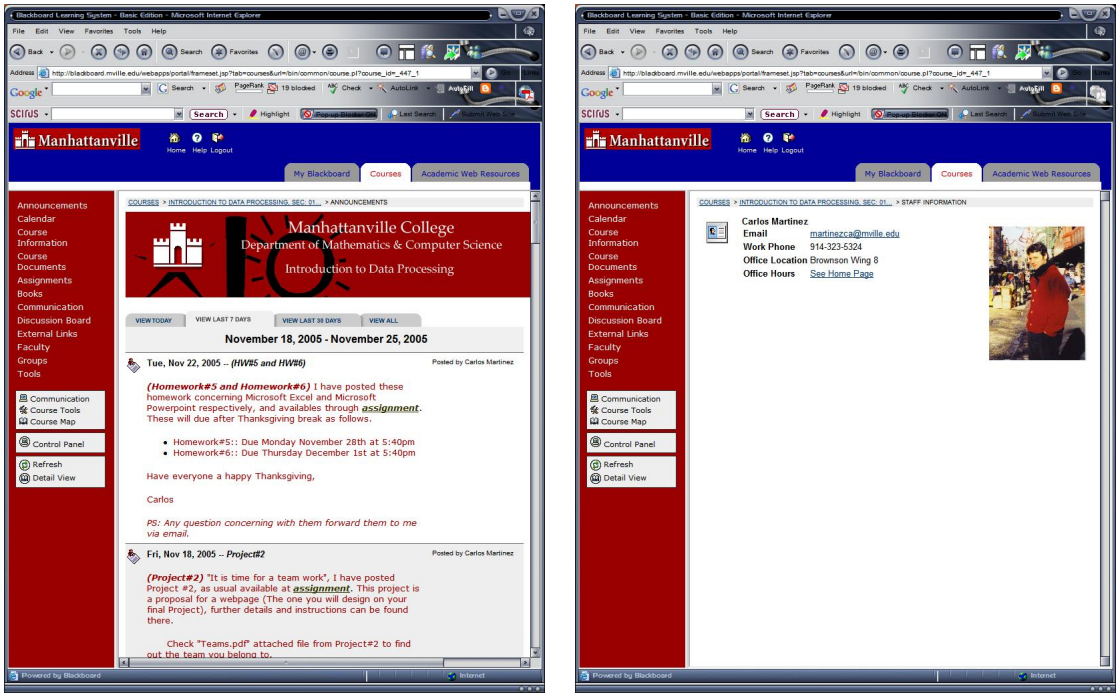


Figure 1: Announcement & Contact Information

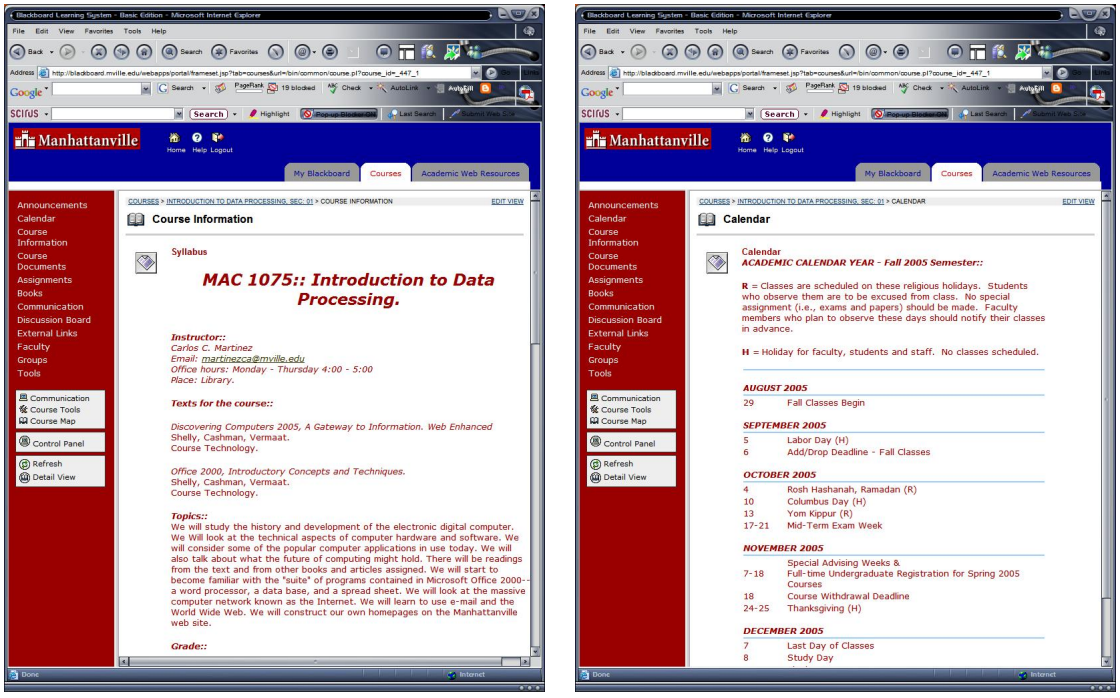


Figure 2: Syllabus & Calendar

CP-2

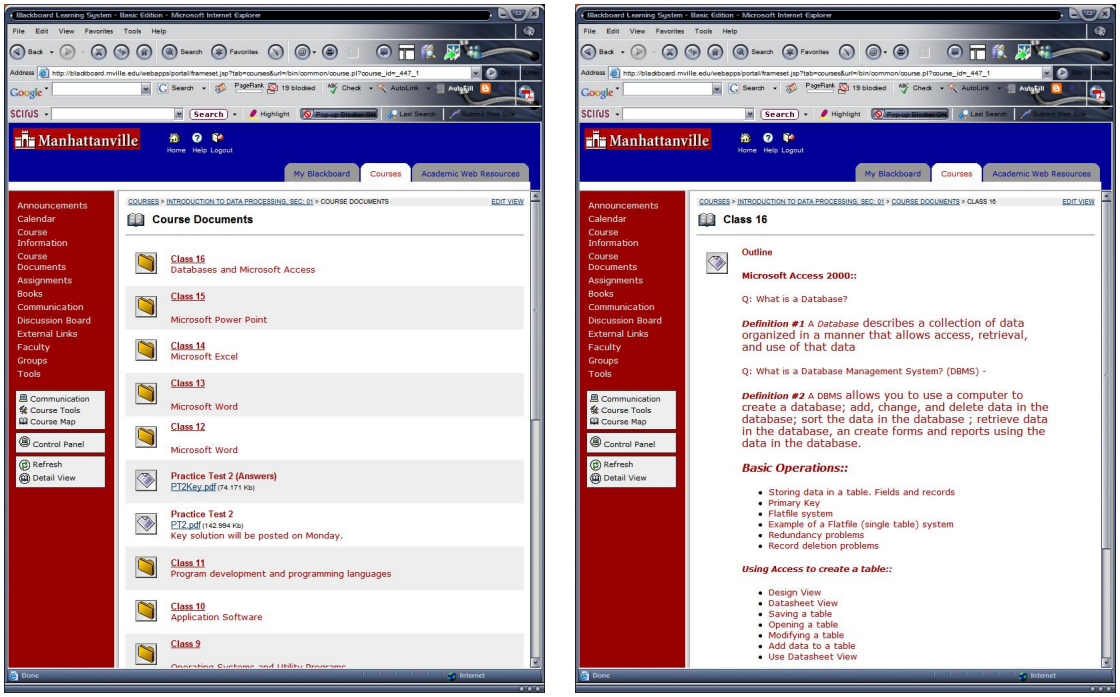


Figure 3: Course Documents & Outline Class 16

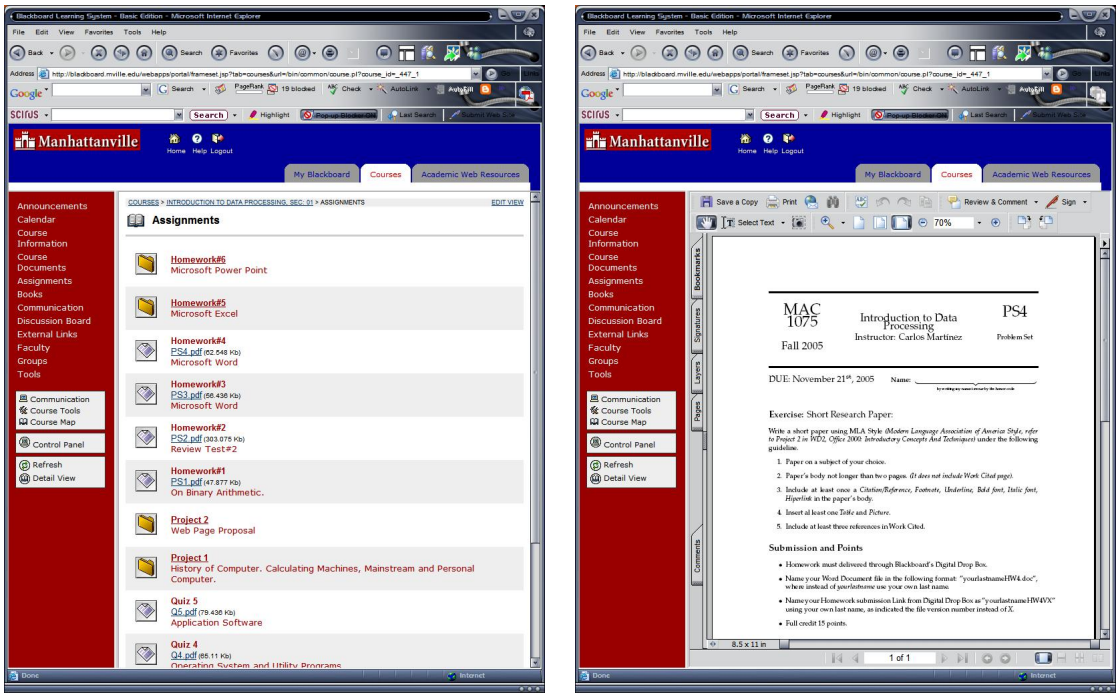


Figure 4: Assignments & Homework #4

CP-3

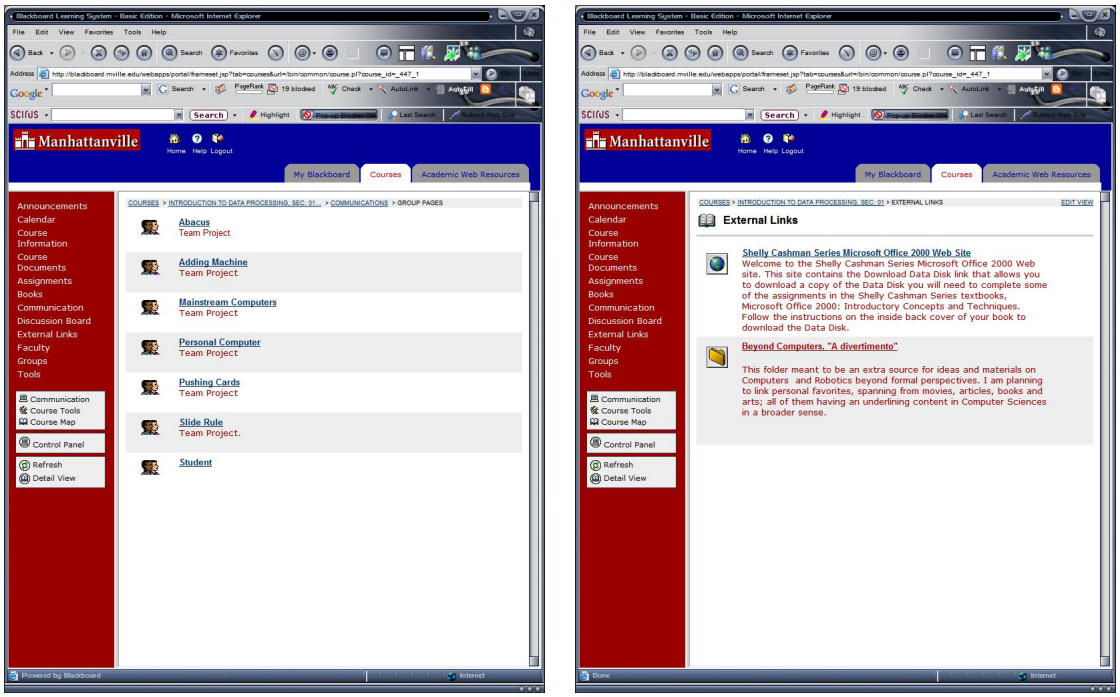


Figure 5: Team Projects & External Links

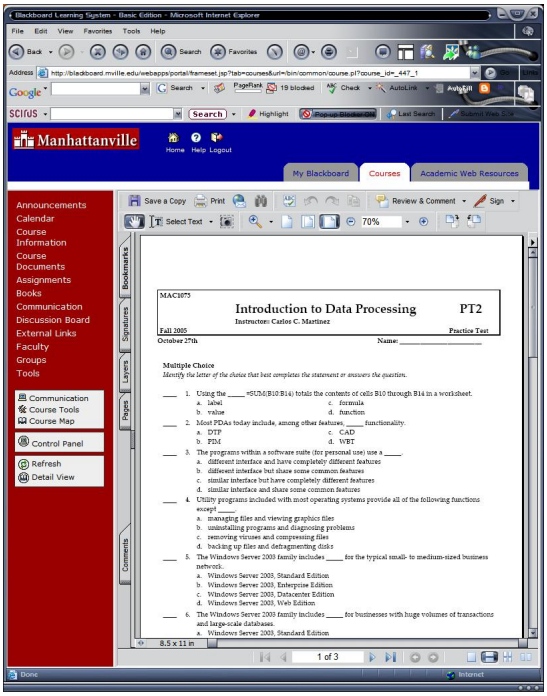


Figure 6: Practice Test

CP-4

MAC 1075

Fall 2005

Introduction to Data Processing

Instructor: Carlos Martínez

PS4

Problem Set

DUE: November 21st, 2005 **Name:** _____

by writing my name i swear by the honor code

Exercise: Short Research Paper:

Write a short paper using MLA Style *(Modern Language Association of America Style, refer to Project 2 in WD2, Office 2000: Introductory Concepts And Techniques)* under the following guideline.

1. Paper on a subject of your choice.
2. Paper's body not longer than two pages. *(It does not include Work Cited page).*
3. Include at least once a *Citation/Reference*, *Footnote*, *Underline*, *Bold font*, *Italic font*, *Hiperlink* in the paper's body.
4. Insert al least one *Table* and *Picture*.
5. Include at least three references in Work Cited.

Submission and Points

- Homework must delivered through Blackboard's Digital Drop Box.
- Name your Word Document file in the following format: "yourlastnameHW4.doc", where instead of *yourlastname* use your own last name.
- Name your Homework submission Link from Digital Drop Box as "yourlastnameHW4VX" using your own last name, as indicated the file version number instead of *X*.
- Full credit 15 points.

MAC1075

Introduction to Data Processing PT2

Instructor:: Carlos C. Martinez

Fall 2005 **Practice Test**

October 27th **Name: _____**

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

____ 1. Using the _____ =SUM(B10:B14) totals the contents of cells B10 through B14 in a worksheet.
   a. label
   b. value
   c. formula
   d. function

____ 2. Most PDAs today include, among other features, _____ functionality.
   a. DTP
   b. PIM
   c. CAD
   d. WBT

____ 3. The programs within a software suite (for personal use) use a _____.
   a. different interface and have completely different features
   b. different interface but share some common features
   c. similar interface but have completely different features
   d. similar interface and share some common features

____ 4. Utility programs included with most operating systems provide all of the following functions except _____.
   a. managing files and viewing graphics files
   b. uninstalling programs and diagnosing problems
   c. removing viruses and compressing files
   d. backing up files and defragmenting disks

____ 5. The Windows Server 2003 family includes _____ for the typical small- to medium-sized business network.
   a. Windows Server 2003, Standard Edition
   b. Windows Server 2003, Enterprise Edition
   c. Windows Server 2003, Datacenter Edition
   d. Windows Server 2003, Web Edition

____ 6. The Windows Server 2003 family includes _____ for businesses with huge volumes of transactions and large-scale databases.
   a. Windows Server 2003, Standard Edition
   b. Windows Server 2003, Enterprise Edition
   c. Windows Server 2003, Datacenter Edition
   d. Windows Server 2003, Web Edition

____ 7. Programmers use a variety of programming languages to write, or _____, a program.
a. compile
b. code
c. interpret
d. execute

____ 8. In some cases, an assembly language uses a type of _____ to generate the many machine language instructions for a single assembly language instruction.
a. bug
b. script
c. macro
d. tag

____ 9. A(n) _____ is an interpreted program that runs on the server.
a. script
b. servlet
c. applet
d. image map

____ 10. In structured design, a section of a program that performs a single function is a _____.
a. main routine
b. bug
c. macro generator
d. module

True/False

Indicate whether the sentence or statement is true or false.

____ 11. A serif font does not have the short decorative lines at the upper and lower ends of the characters.

____ 12. The programs in software suites for personal use typically have all the capabilities of business applications.

____ 13. Volume business ASP provides applications for a particular industry, such as construction, health care, or retail.

____ 14. Windows XP rarely accesses the registry during the computer's operation.

____ 15. When users press a key or move the mouse, a screen saver disappears and the screen returns to the previous state.

____ 16. Like other operating systems, Linux is proprietary software.

____ 17. The first step in building a Visual Basic .NET 2003 program is to generate and test the final program.

____ 18. Popular scripting languages include JavaScript, VBScript, and Perl.

____ 19. Program development is an ongoing process within system development.

____ 20. Extreme programming essentially eliminates the design solution and validate design steps of the traditional program development cycle.

Completion

Complete each sentence or statement.

21. A(n) _____, such as Times New Roman and Arial in the accompanying figure, is a name assigned to a specific design of characters.
22. _____ is software that allows users to draw pictures, shapes, and other graphical images with various on-screen tools such as a pen, brush, eyedropper, and paint bucket.
23. A(n) _____ is application software that exists on a Web site.
24. The kernel is _____, which means it remains in memory while the computer is running.
25. _____ is privately owned software and limited to a specific vendor or computer model.
26. _____ is a multitasking operating system developed in the early 1970s by scientists at Bell Laboratories.
27. A(n) _____ is a meaningful name that identifies a storage location in an assembly language.
28. _____ is an object-oriented programming language that is an extension of the C programming language.
29. A(n) _____ is a language that provides a visual or graphical interface for creating source code.
30. When programmers do a(n) _____, they use test data to step through a program's logic.

MA 063

Fall 2005

Elementary Algebra
Instructor: Carlos C. Martínez

CP

Course Profile

November, 2005

Summary.

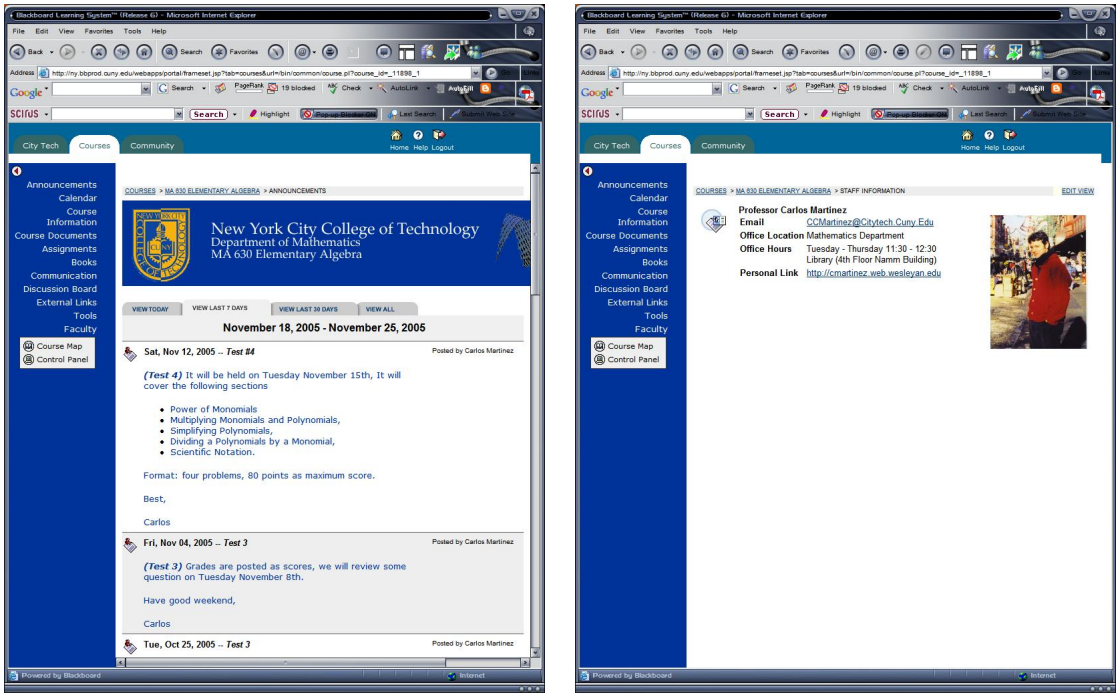
This course provides students with instruction in the essential topics of elementary algebra, with an intensive review of basic mathematics. The course is designed to prepare students who have a limited knowledge of algebra for first level mathematics courses.

In order to achieve these goals and to accommodate students' special needs I have designed extra supporting materials such as *Sample Solutions (Figure 6)* and *Work in Class (Figure 7)*, and made these available to students throughout Blackboard[1] *(Figure 1)*. Specifically, a Sample Solution provides extensive exercise solutions from previously assigned homework and stresses their mathematical writing. On the other hand, Work in Class aims to provide exercises on topics previously presented during a lecture, allowing students to review them through direct practice under my supervision.

Textbooks.

- *Beginning Algebra (Sixth edition) with a Supplement for Beginning Algebra (Third Edition)* by D. Hutchison, B. Bergman, L. Hoelzle, S. Baratto, M. S. Gage, F. J. Gelbwasser.

[1] http://www.blackboard.com: Blackboard is a Networked Learning Environment that allows teachers/students to view instructional content, collaborate, evaluate academic performance and access learning resources.



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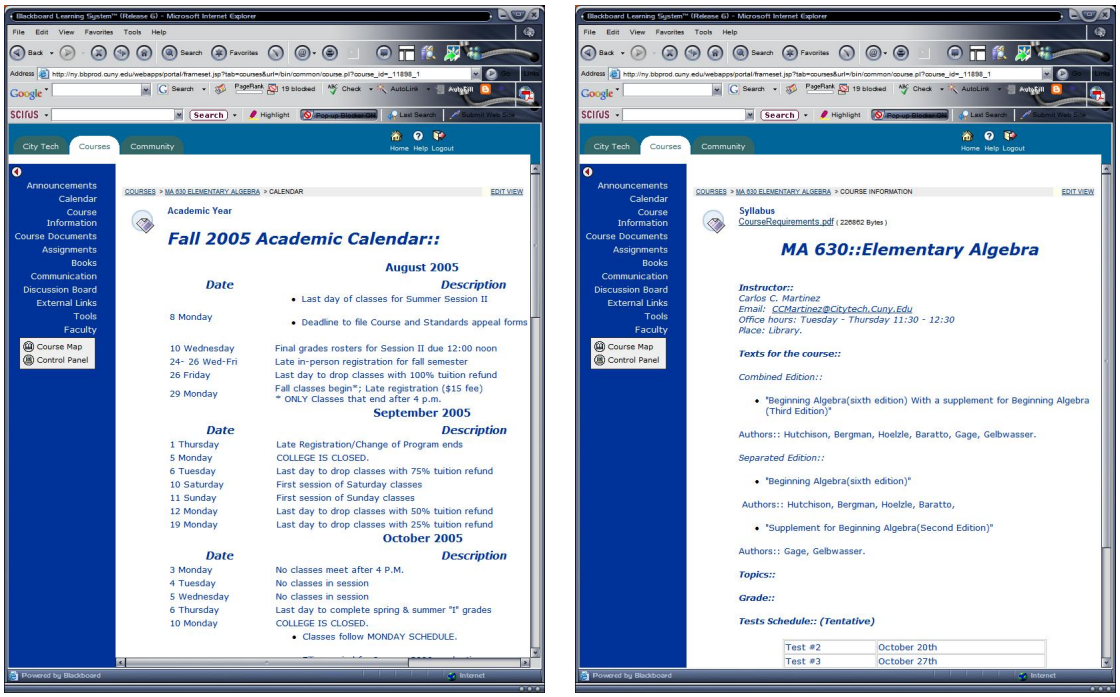


Figure 2: Calendar & Syllabus

CP-2

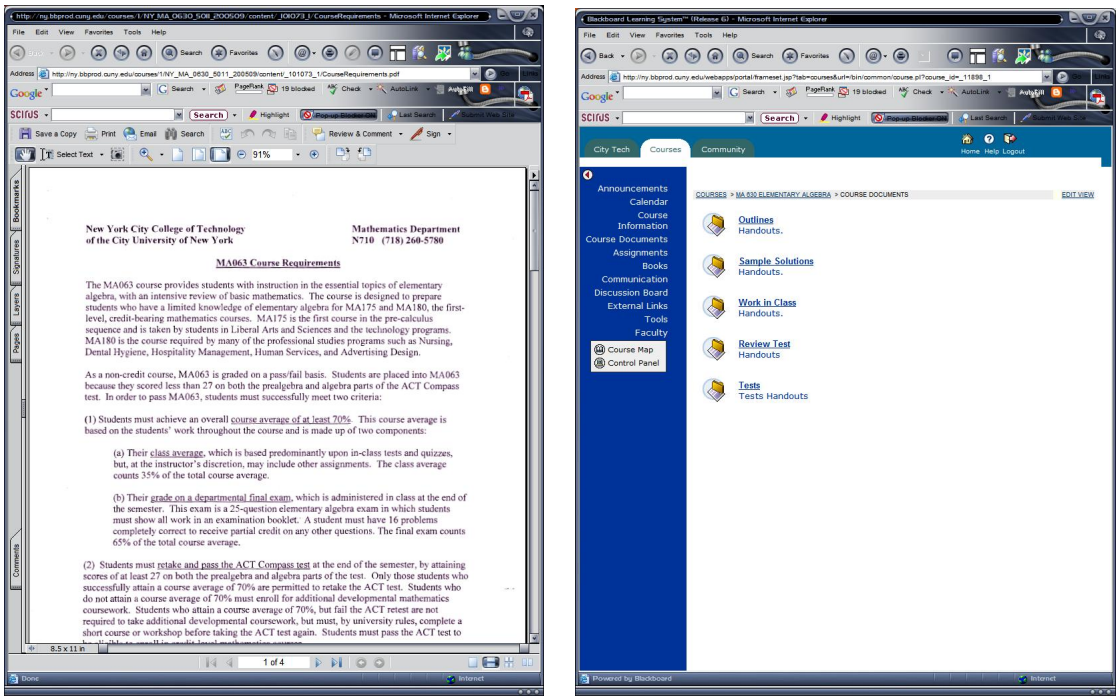


Figure 3: Course Police & Handouts

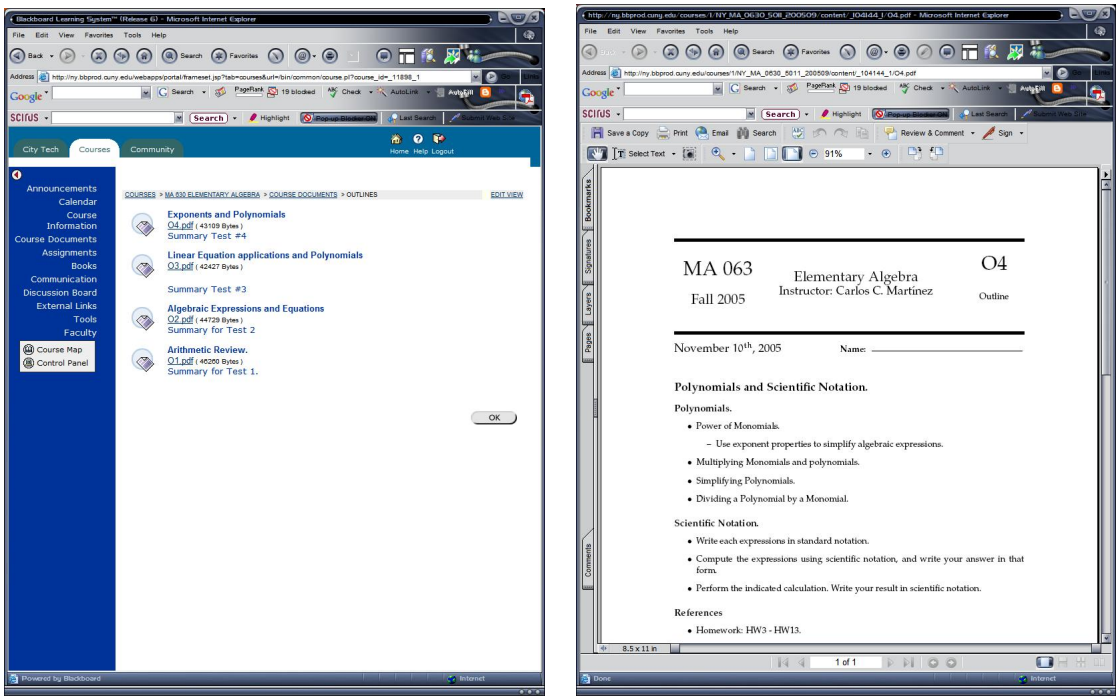


Figure 4: Test Outlines & OT#4

CP-3

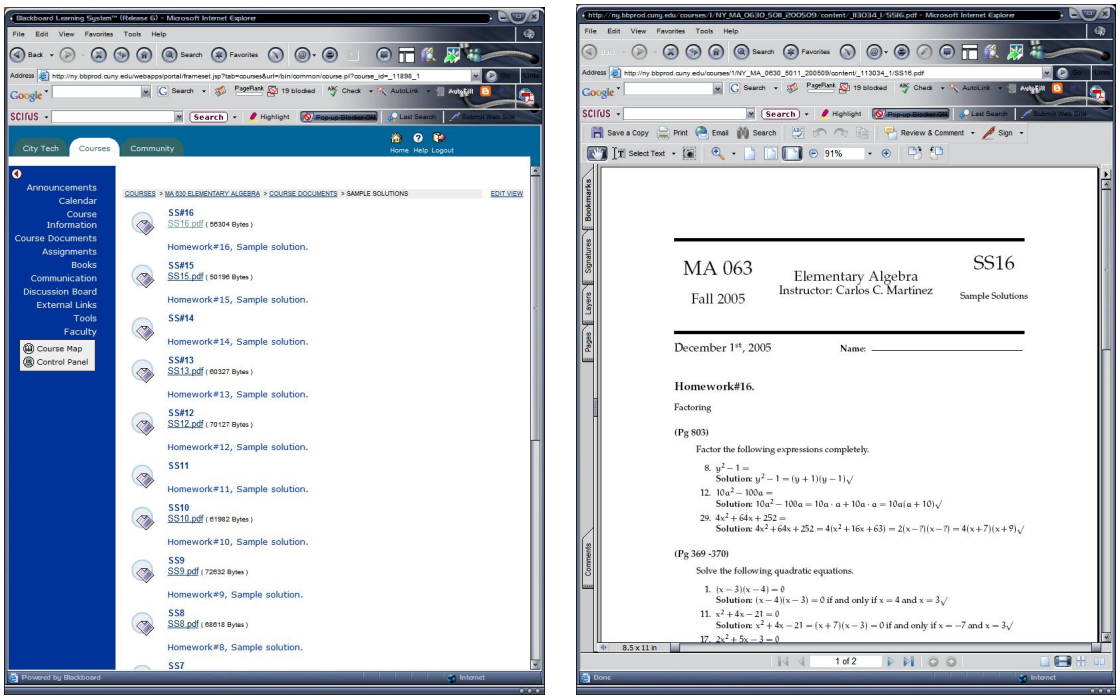


Figure 5: Sample Solutions & SS#16

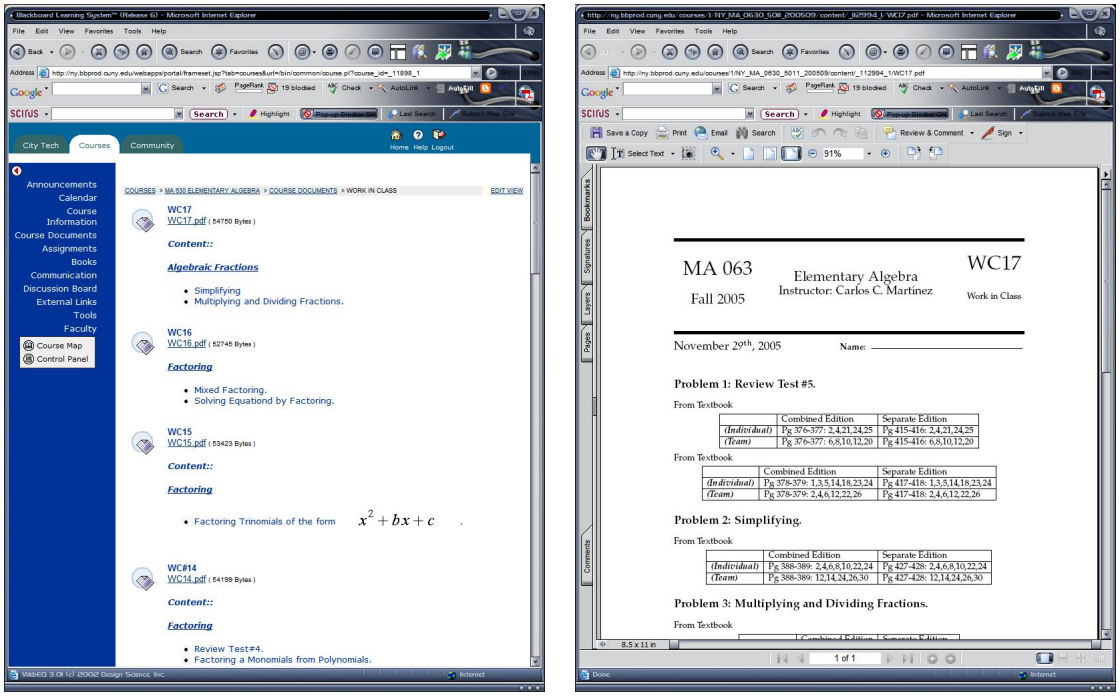


Figure 6: Work in Class & WC#17

CP-4

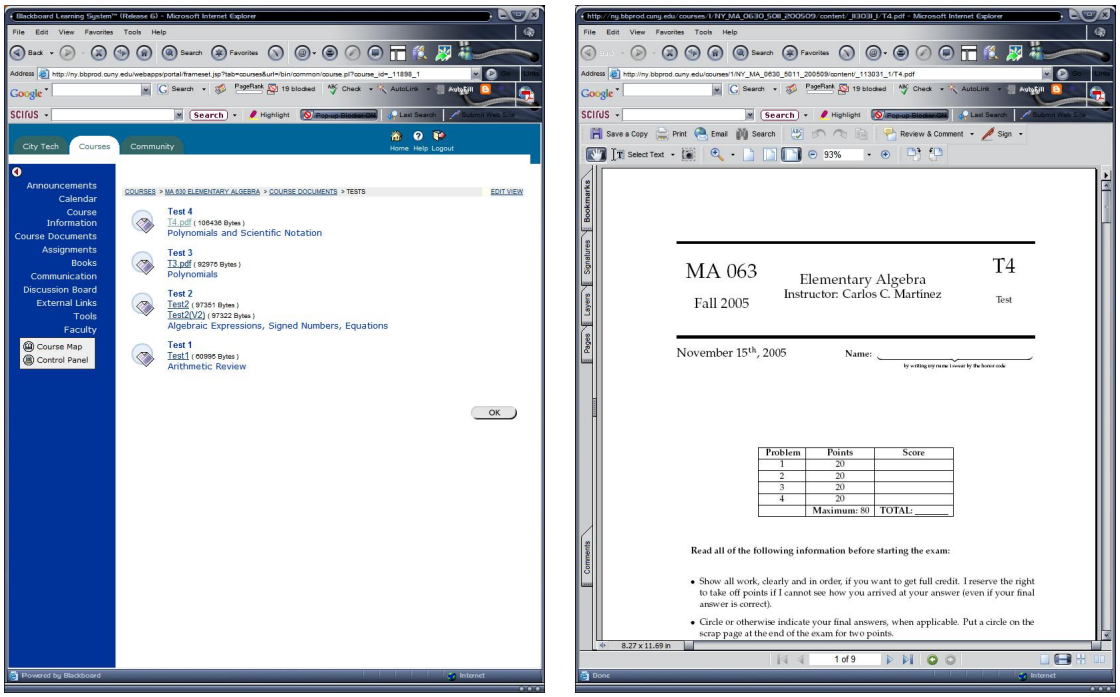


Figure 7: Tests & T#4

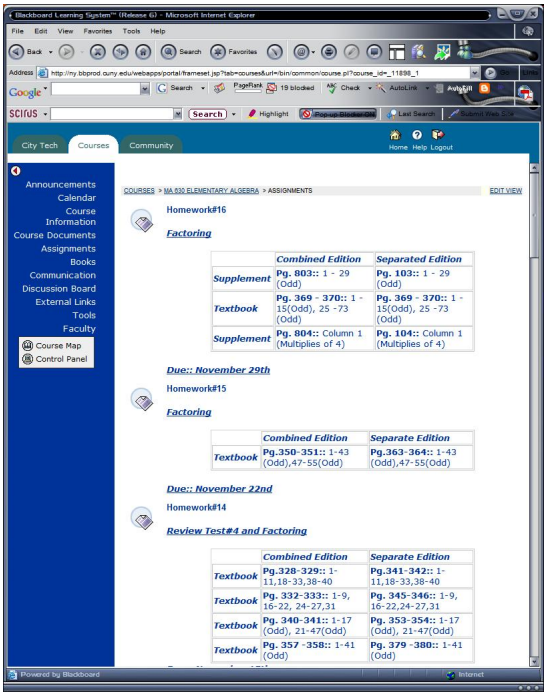


Figure 8: Homework

CP-5

MA 063

Fall 2005

Elementary Algebra
Instructor: Carlos C. Martínez

O4

Outline

November 10th, 2005 **Name:** _____

Polynomials and Scientific Notation.

Polynomials.

- Power of Monomials.
  - Use exponent properties to simplify algebraic expressions.
- Multiplying Monomials and polynomials.
- Simplifying Polynomials.
- Dividing a Polynomial by a Monomial.

Scientific Notation.

- Write each expressions in standard notation.
- Compute the expressions using scientific notation, and write your answer in that form.
- Perform the indicated calculation. Write your result in scientific notation.

References

- Homework: HW3 - HW13.
- Sample Solution: SS10 - SS12.

MA 063

Fall 2005

Elementary Algebra
Instructor: Carlos C. Martínez

SS16

Sample Solutions

December 1st, 2005 **Name:** _____

Homework#16.

Factoring

(Pg 803)

Factor the following expressions completely.

8. $y^2 - 1 =$
Solution: $y^2 - 1 = (y+1)(y-1)\surd$
12. $10a^2 - 100a =$
Solution: $10a^2 - 100a = 10a \cdot a + 10a \cdot 10 = 10a(a+10)\surd$
29. $4x^2 + 64x + 252 =$
Solution: $4x^2 + 64x + 252 = 4(x^2 + 16x + 63) = 4(x-?)(x-?) = 4(x+7)(x+9)\surd$

(Pg 369 -370)

Solve the following quadratic equations.

1. $(x-3)(x-4) = 0$
Solution: $(x-4)(x-3) = 0$ if and only if $x = 4$ and $x = 3\surd$
11. $x^2 + 4x - 21 = 0$
Solution: $x^2 + 4x - 21 = (x+7)(x-3) = 0$ if and only if $x = -7$ and $x = 3\surd$
17. $2x^2 + 5x + 3 = 0$
Solution: $2x^2 + 5x + 3 = (2x+3)(x+1) = 0$ if and only if $x = -\frac{3}{2}$ and $x = -1\surd$
21. $4x^2 - 24x + 35 = 0$
Solution: $4x^2 - 24x + 35 = (2x-7)(2x-5) = 0$ if and only if $x = \frac{7}{2}$ and $x = \frac{5}{2}\surd$

(Pg 804)

Solving the following equations.

1. $y^2 + 2y + 1 = 0$
   Solution: $y^2 + 2y + 1 = 0$ if and only if $(y + 1)(y + 1) = 0$ if and only if $x = -1$ and $x = -1\surd$
16. $p^2 - 2p = 0$
   Solution: $p^2 - 2p = 0$ if and only if $p(p - 2) = 0$ if and only if $p = 0$ and $p = 2\surd$
22. $x^2 - 8x + 7 = 0$
   Solution: $x^2 - 8x + 7 = 0$ if and only if $(x - 7)(x - 1) = 0$ if and only if $x = 7$ and $x = 1\surd$
26. $3x^2 - 27 = 0$
   Solution: $3x^2 - 27 = 0$ if and only if $3(x^2 - 9) = 0$ if and only if $4(x-3)(x+3) = 0$ if and only if $x = 3$ and $x = -3\surd$
46. $49n^2 = 36$
   Solution: $49n^2 = 36$ and only if $49n^2 - 36 = 0$ if and only if $(7n)^2 - 6^2 = 0$ if and only if $(7n + 6)(7n - 6) = 0$ if and only if $n = -\frac{6}{7}$ and $n = \frac{6}{7}\surd$

SS16-2

MA 063

Fall 2005

Elementary Algebra

Instructor: Carlos C. Martínez

WC17

Work in Class

November 29th, 2005 **Name:** _____

Problem 1: Review Test #5.

From Textbook

	Combined Edition	Separate Edition
(Individual)	Pg 376-377: 2,4,21,24,25	Pg 415-416: 2,4,21,24,25
(Team)	Pg 376-377: 6,8,10,12,20	Pg 415-416: 6,8,10,12,20

From Textbook

	Combined Edition	Separate Edition
(Individual)	Pg 378-379: 1,3,5,14,18,23,24	Pg 417-418: 1,3,5,14,18,23,24
(Team)	Pg 378-379: 2,4,6,12,22,26	Pg 417-418: 2,4,6,12,22,26

Problem 2: Simplifying.

From Textbook

	Combined Edition	Separate Edition
(Individual)	Pg 388-389: 2,4,6,8,10,22,24	Pg 427-428: 2,4,6,8,10,22,24
(Team)	Pg 388-389: 12,14,24,26,30	Pg 427-428: 12,14,24,26,30

Problem 3: Multiplying and Dividing Fractions.

From Textbook

	Combined Edition	Separate Edition
(Individual)	Pg 395-396: 2,4,6,8	Pg 434-435: 2,4,6,8
(Team)	Pg 395-396: 26,28	Pg 434-435: 26,28

Supplement

	Combined Edition	Separate Edition
(Individual)	Pg 812-813: 2,4,6,8	Pg 112-114: 2,4,6,8
(Team)	Pg 812-813: 10,12,14,16	Pg 112-114: 10,12,14,16

MA 063

Fall 2005

Elementary Algebra

Instructor: Carlos C. Martínez

T4

Test

November 15th, 2005

Name: _____

by writing my name i swear by the honor code

Problem	Points	Score
1	20	
2	20	
3	20	
4	20	
	Maximum: 80	**TOTAL:** _____

Read all of the following information before starting the exam:

- Show all work, clearly and in order, if you want to get full credit. I reserve the right to take off points if I cannot see how you arrived at your answer (even if your final answer is correct).
- Circle or otherwise indicate your final answers, when applicable. Put a circle on the scrap page at the end of the exam for two points.
- Please keep your written answers brief; be clear and to the point.
- Good luck!

Problem 1: Exponents. ***(20 points)***

Use the five properties of exponents to simplify each of the following expressions.

a) $(3x)^2 =$

b) $(3m^2)^4(m^3)^2 =$

c) $\frac{(y^5)^3(y^3)^2}{(y^4)^4} =$

d) $(2x^2)^4 =$

e) $(a^8b^6)^2 =$

f) $4(2rs)^4 =$

g) $\frac{(m^5)^3}{m^6} =$

h) $(\frac{x^5y^2}{z^4})^2 =$

i) $(\frac{a}{2})^5 =$

j) $(p^3q^4)^2 =$

Extra Sheet.

T4-3

Problem 2: Scientific Notation. ***(20 points)***

(i) *Use the five properties of exponents to simplify each of the following expressions.*

a) $(4 \times 10^{-3})(2 \times 10^{-5}) =$

b) $\frac{(6\times 10^{9})}{(3\times 10^{7})} =$

c) $\frac{(3.3\times 10^{15})(6\times 10^{15})}{(1.1\times 10^{8})(3\times 10^{6})} =$

d) $\frac{(7.5\times 10^{-4})}{(1.5\times 10^{2})} =$

e) $(2.5 \times 10^{7})(3 \times 10^{5}) =$

f) $\frac{(6\times 10^{12})(3.2\times 10^{8})}{(1.6\times 10^{7})(3\times 10^{2})} =$

(ii) *Word Problem.*

If there are 6×10^{9} people on the Earth and there is enough freshwater to provide each person with 8.79×10^{5}L. How much freshwater is on the Earth?

Extra Sheet.

T4-5

Problem 3: Polynomials.***(20 points)***

(i) Multiply

a) $(-5x^2)(3x^3) =$

b) $(7a^3b^5)(-6a^4b) =$

c) $9a^2(3a^3 + 5a) =$

d) $3s^2(4s^2 - 7s) =$

e) $2x(4x^2 - 2x + 1) =$

f) $uv(vu) =$

(ii) Find the following square.

a) $(x + 5)^2 =$

b) $(w - 6)^2 =$

c) $(y + 9)^2 =$

d) $(a - 8)^2 =$

T4-6

Extra Sheet.

T4-7

Problem 4: Polynomials.***(20 points)***

(i) Divide.

a) $\frac{9x^3+12x^2}{3x} =$

b) $\frac{42x^5y^2}{6x^3y} =$

c) $\frac{18x^2}{9x^2} =$

d) $\frac{10m^2+5m}{5} =$

e) $\frac{16a^3-24a^2}{4a} =$

f) $(\frac{18a^4+12a^3-6a^2}{6a}) =$

(ii) Simplify.

a) $z(z-3)-z(z+4)-9z =$

b) $a^2+2a^2(3b)-(-3a^2)-6b(a^2) =$

c) $3x+5x(x+5)-(2x-6) =$

d) $(5-x)4-3(2x-5)+(3x-6) =$

T4-8

Extra Sheet.

T4-9

MATH 117-04

Introduction to Calculus
Instructor: Carlos Martínez

CP

Course Profile

Fall 2003

November, 2005

Summary.

This course is part of a *non-traditional* calculus sequence based on *Harvard Consortium Style Calculus*, Math 117-118, which incorporates innovations in the teaching of calculus. The course has proved to work well for students with little prior experience with the study of calculus. A major difference with a traditional calculus sequence is the reduction of time spent in lecture mode, i.e., when the instructor presents material at the chalkboard. Instead, most of the class time is spent on interactive work. Often class begins with a brief discussion about themes and examples from previously assigned readings. The class then divides into groups to work together on examples or discussion questions. Much of the course learning takes place within these groups. The brief class discussions are supplementary to the group work. In addition to working together in class, students also work on regularly assigned team homework. Each team assignment involves careful thought and goal work on problems of more subtlety and complexity than most homework problems, and will requires complete, well-organized and carefully articulated written solutions.

Supporting materials were available to students through a web-page designed for this purpose [1]; among these materials were *Work in Class (Figure 4)*, *Handouts (Figure 1*, *Tests (Figure 3)* and *Skills Tests (Figure 3)*.

Textbook and Graphing Calculator.

- *Single Variable Calculus (Third Edition)* by D. Hughes-Hallett, A. M. Gleason, W. G. McCallum, D. O. Lomen, D. Lovelock, J. Tecosky-Feldman, T. W. Tucker, D. E. Flath, J. B. Thrash, K. Rhea, A. Pasquale, S. P. Gordon, D. Quinney, P. F. Lock .
- *Texas Instruments Graphing Calculator*: TI-83.

[1] http://cmartinez.web.wesleyan.edu/Math117(03).htm

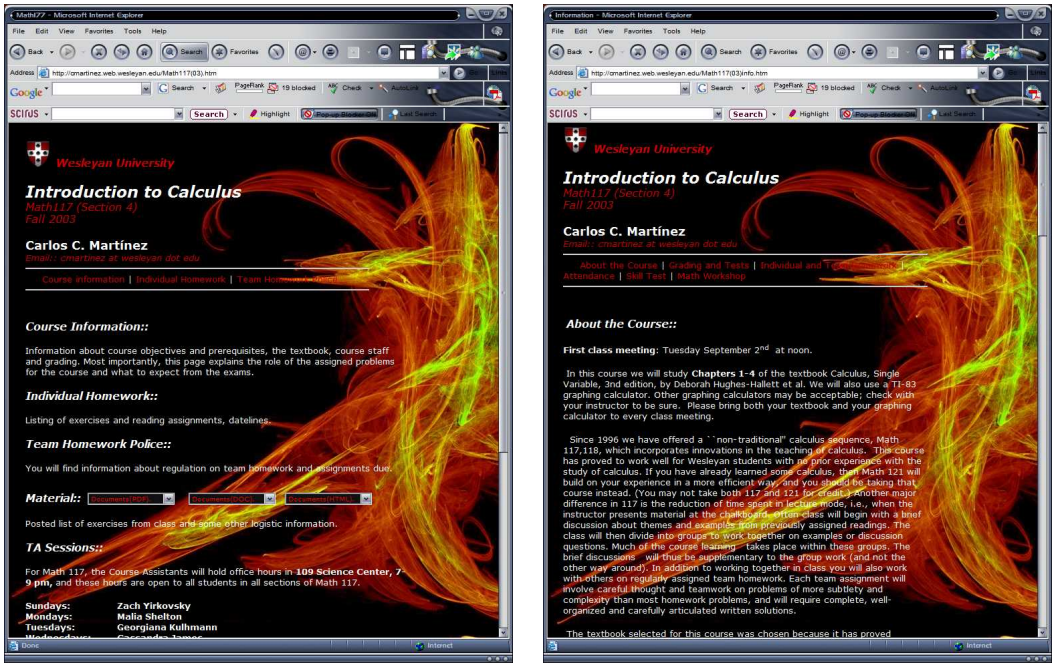


Figure 1: Front page & Course Outline

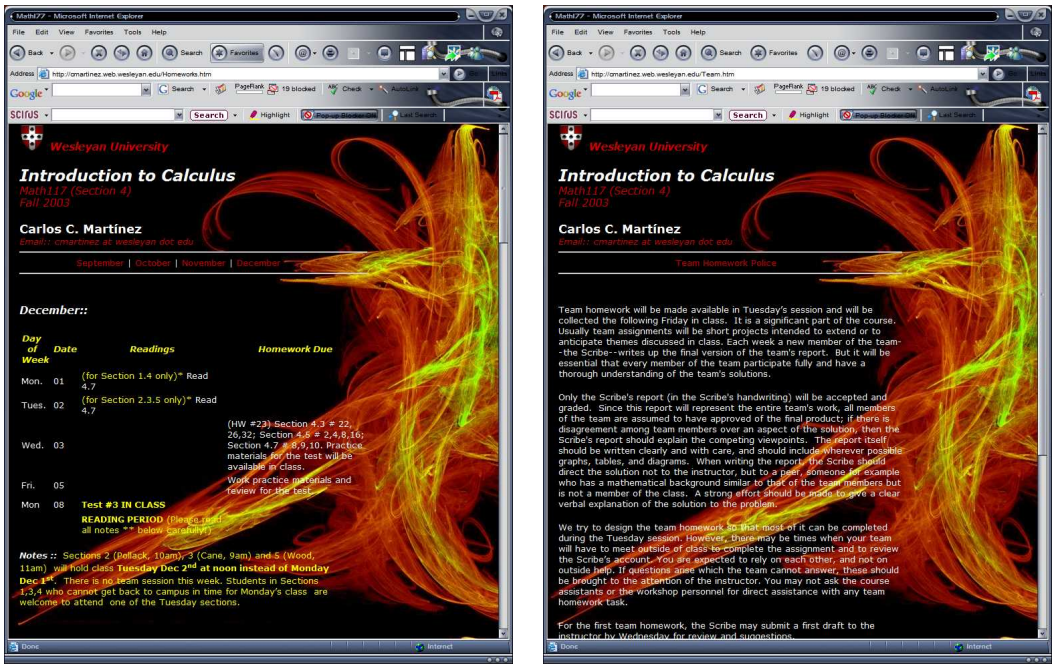
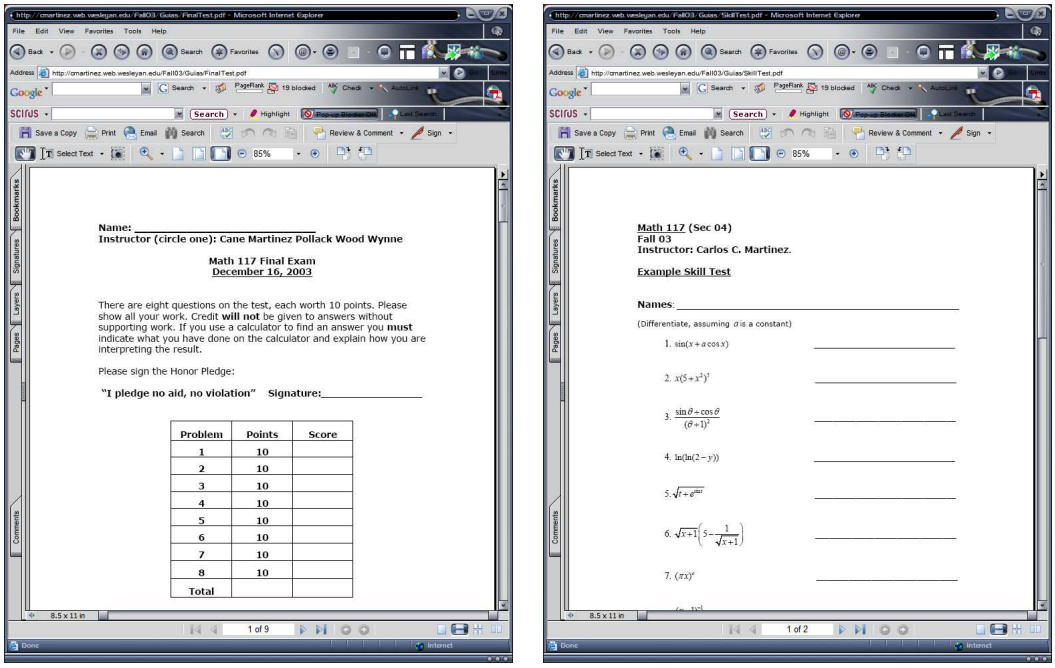


Figure 2: Homework Schedule & Team Homework Police

CP-2



Name: _____
Instructor (circle one): Cane Martinez Pollack Wood Wynne

Math 117 Final Exam
December 16, 2003

There are eight questions on the test, each worth 10 points. Please show all your work. Credit **will not** be given to answers without supporting work. If you use a calculator to find an answer you **must** indicate what you have done on the calculator and explain how you are interpreting the result.

Please sign the Honor Pledge:

"I pledge no aid, no violation" **Signature:**_____

Problem	Points	Score
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
Total		

Math 117 (Sec 04)
Fall 03
Instructor: Carlos C. Martinez.

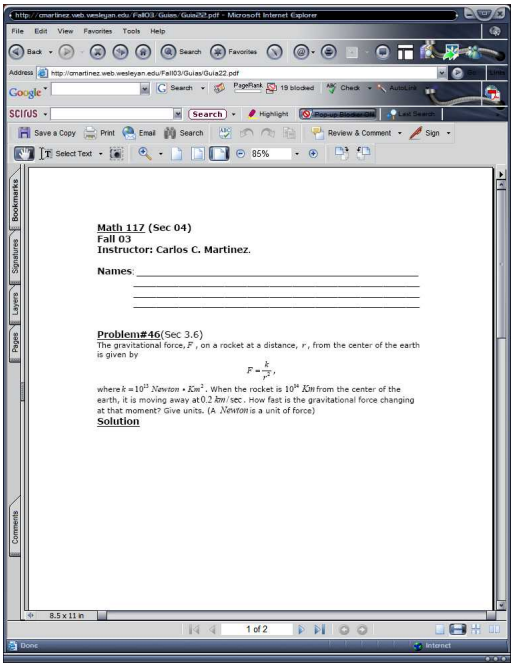
Example Skill Test

Names: _____

(Differentiate, assuming a is a constant)

1. $\sin(x+a\cos x)$ _____
2. $x(5+x^2)^7$ _____
3. $\frac{\sin\theta+\cos\theta}{(\theta+1)^2}$ _____
4. $\ln(\ln(2-y))$ _____
5. $\sqrt{t+e^{at}}$ _____
6. $\sqrt{x+1}\left(5-\frac{1}{\sqrt{x+1}}\right)$ _____
7. $(\pi x)^e$ _____

Figure 3: Final Exam & Skills Test



Math 117 (Sec 04)
Fall 03
Instructor: Carlos C. Martinez.

Names: _____

Problem#46(Sec 3.6)
The gravitational force, F, on a rocket at a distance, r, from the center of the earth is given by

$$F=\frac{k}{r^2},$$

where $k=10^{13}\ Newton\cdot Km^2$. When the rocket is $10^{24}\ Km$ from the center of the earth, it is moving away at $0.2\ km/sec$. How fast is the gravitational force changing at that moment? Give units. (A *Newton* is a unit of force)

Solution

Figure 4: Work in Class

CP-3

Name: _____
Instructor (circle one): Cane Martinez Pollack Wood Wynne

Math 117 Final Exam
December 16, 2003

There are eight questions on the test, each worth 10 points. Please show all your work. Credit **will not** be given to answers without supporting work. If you use a calculator to find an answer you **must** indicate what you have done on the calculator and explain how you are interpreting the result.

Please sign the Honor Pledge:

"I pledge no aid, no violation" Signature:_____

Problem	Points	Score
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
Total		

Problem #1

Given the fact that

$$\lim_{h\to 0}\left(\frac{(3+h)^{(3+h)}-27}{h}\right)\approx 56.7\,,$$

find an equation for the tangent line to the graph of $f(x)=x^x$ at $(3,\,27)$.

Problem #2

Sketch the graph of the following function, indicating all x-intercepts, y-intercepts, and horizontal and vertical asymptotes.

$$g(x) = \frac{x+1}{x^2-4}$$

Problem #3

An exponentially decaying substance was weighed every hour and the results are given in the table below:

Time	Weight (in grams)
9 AM	10.000
10 AM	8.958
11 AM	8.025
12 AM	7.189
1 PM	6.440

a) Determine a formula of the form

$$Q(t) = Q_0 e^{-kt}$$

which would give the weight, $Q(t)$, of the substance t hours after 9 am.

b) What is the approximate half-life of the substance?

Problem #4

The water level in a certain harbor is given in feet by

$$y = 6 + 4.7\cos(\frac{\pi}{6}t)$$

where t is the number of hours past noon on December 17, 2003.

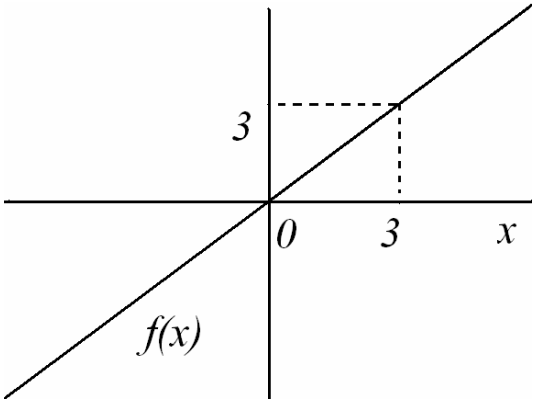
a) How fast is the water level changing at 3 pm on December 17, 2003?(include units)

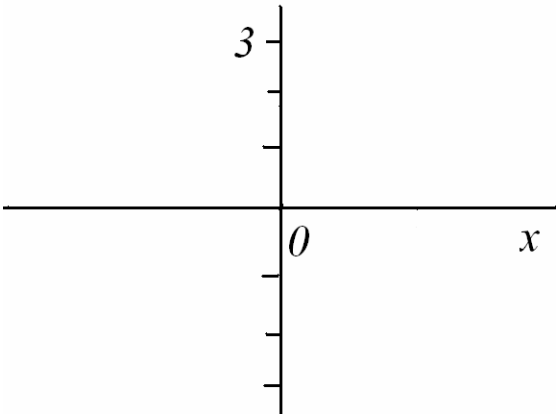
b) At what time t on the afternoon of December 17 is the water level at its minimum?

Problem #5

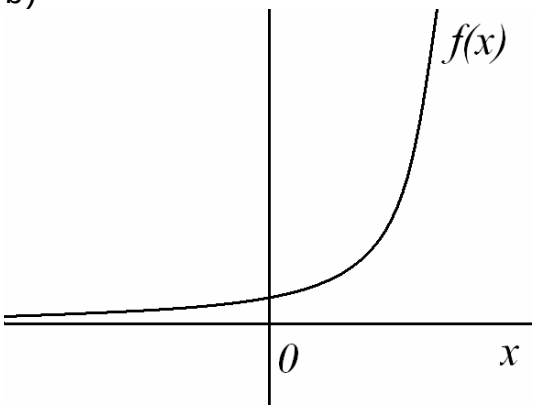
Sketch the derivative of each of the following functions:

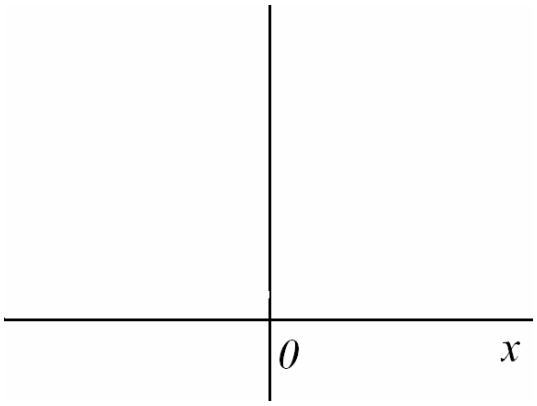
a)



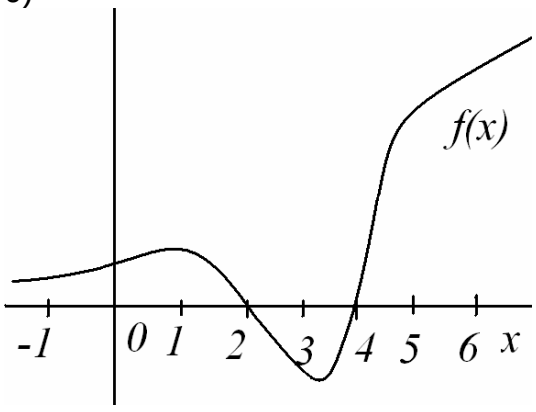


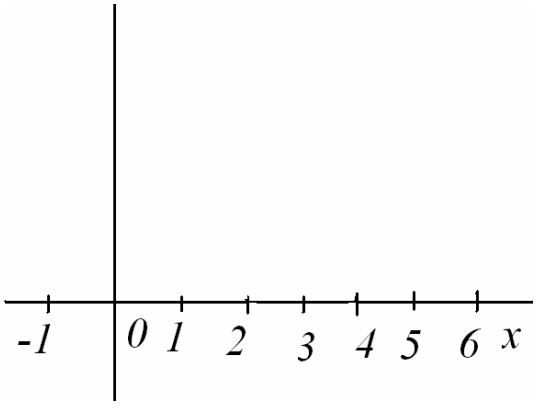
b)





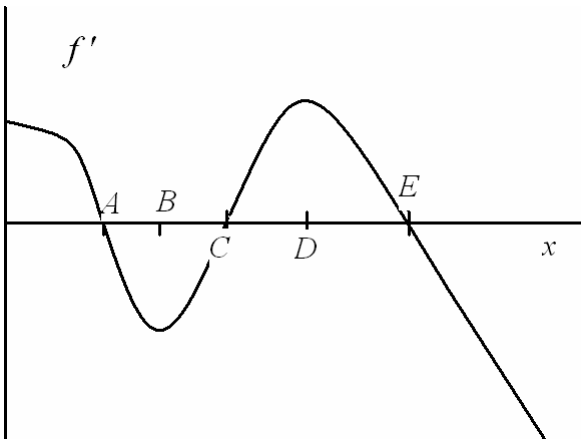
c)





Problem #6

Below is the graph of f', the derivative of a function f. Answer the following questions, with explanation.



(Graph of f', not f)

a) At which of the labeled points does f have a local maximum?
Answer: _____ **Explanation:**

b) At which of the labeled points does f have a local minimum?
Answer: _____ **Explanation:**

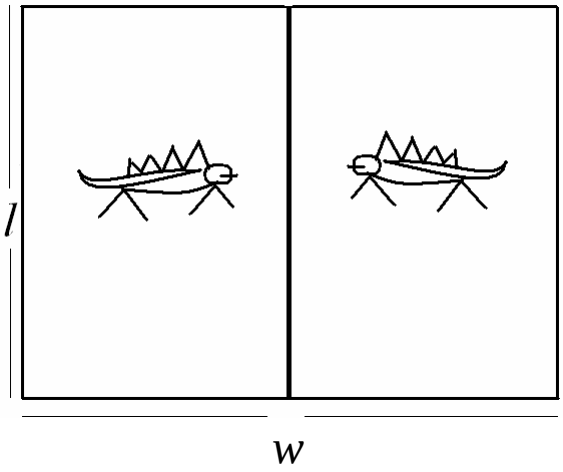
c) At which of the labeled points is f increasing at the greatest rate?
Answer: _____ **Explanation:**

d) At which of the labeled points does f have an inflection point?
Answer: _____ **Explanation:**

e) Which is bigger, $f(B)$ or $f(C)$?
Answer: _____ **Explanation:**

Problem #7

At the N.O. Iguana farm there are two species of iguanas which have begun to fight. You as the iguana keeper are forced to create two equal-sized adjoining pens for the iguanas. You have 150 feet of fencing and you want the iguanas to have as much room as possible. What dimensions should you choose for the adjacent pens (see drawing) to maximize the area enclosed?



Math 117 (Sec 04)
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Example Skill Test

Names: _____

(Differentiate, assuming a is a constant)

1. $\sin(x + a\cos x)$ _____

2. $x(5+x^2)^5$ _____

3. $\dfrac{\sin\theta + \cos\theta}{(\theta+1)^2}$ _____

4. $\ln(\ln(2-y))$ _____

5. $\sqrt{t+e^{\sin t}}$ _____

6. $\sqrt{x+1}\left(5-\dfrac{1}{\sqrt{x+1}}\right)$ _____

7. $(\pi x)^e$ _____

8. $\dfrac{(x-1)^{-1}}{\sqrt{x-1}}$ _____

9. $\ln(\tan x)$ _____

10. Find dy/dx: $a^{xy} + \ln(xy) = xy$ _____

Math 117 (Sec 04)
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Names: _____
_____
_____
_____

Problem #46 (Sec 3.6)
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Solution

Problem #29(Sec 3.7)

Sketch the circle $y^2 + x^2 = 1$ and $y^2 + (x-3)^2 = 4$. There is a line with positive slope that is tangent to both circles. Determine the points at which this tangent line touches each circle

Solution

Problem #8

Extra air is pumped into a spherical soccer ball at a constant rate of 2 cubic inches per second. At what rate is the radius of the ball increasing when the radius is 5 inches? Remember that the volume V of a sphere of radius r is given by the formula $V = \frac{4}{3}\pi r^3$.