Review of basic skills: Gateway
Week 1

You might email students ahead of time welcoming them to class and informing them of class times and locations.

LAB DAY:
a) You might take the first 10 minutes or so to review your BLACKBOARD site with your
    students.
b) Intro to **MyLabsPlus.** Students will need their access codes and you will need to go through
   the registration process with them. Check the instructor site for a flyer for directions.
   The MLP course for our new custom edition text includes ALL HOMEWORK FOR EVERY
   SECTION of our text.   The Gateway unit's HW problems are from the regular
   Algebra for Calculus text since the level of difficulty and number of skill problems were more
   appropriate in that text.
   For these first two weeks (the Gateway unit), you will need to refer students to the Handbook
   for worked examples. The paper and pencil problems are still there if you would like to use
   them.

Day 1
- **Course Overview/Student information** on 3x5 cards:
  - *name, contact info*
  - *last math course – what is was, where take it, grade (optional)*
  - *major (if known); will you take another math course at KSU?*
  - *have graphing calc – which?*
  - *level of graphing calc expertise – beginner, intermediate, expert*

- **Review the syllabus.** Discuss grading policies, etc. Students will need a graphing calculator
  beginning week 3.
- **Small Group Activity.** Briefly discuss small group dynamics. Tell students that some of the
  work in this class, as well as 3 projects, will be done in small groups. Discuss the roles of
  facilitator, recorder, reporter, social secretary. Discuss what makes a functional group: respect
  each other, listen to each other, everyone do their fair share, etc.   In small groups (3 or 4
  students), ask students to assign the above jobs, share names, phone numbers, emails and answer
  the following questions:
  - *why are you taking this course?*
  - *what is your attitude toward math?*
  - *what are your expectations, in terms of time commitment?*
  - *what are your expectations from the instructor?*

  Ask reporter from each group to summarize attitudes and expectations.
  This entire activity takes about 10 minutes, sets the tone for group work and "breaks the ice" for
  the first day (gets them used to talking).

- **Order of Operations.** You might give students an "order of operations" problem and have them work in their groups. Discuss. If you've given them a good problem, different groups will propose different answers and you can come to some "group consensus" about a consistent way of doing these problems. Discuss need for such a consensus.

- **Subsets of Real Numbers. (Only if time permitting)** Continue then with subsets of real numbers: a Venn diagram is a great way to summarize this information. You might use a personal or historical approach: counting numbers are the most basic set of numbers. (*Which numbers did you use first as a child?*) The notion of one-to-one correspondence comes into play. Shepherds used to "count" their sheep by using pebbles—each pebble represented one sheep. You can view a quick lesson with checkpoints at: http://www.math.kent.edu/ebooks/FUNMATHV/realnumbers.htm

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Suggested Homework: **MLP: GW1A** and **GW1B**
Note: Be sure to assign BOTH of these assignments (eventually), a total of 25 problems. Because the exponent problems are chosen from an alternate text, MLP only permits 10 such problems per assignment. I included a few problems from the Harshbarger text concerning set notation and subsets of real numbers in GW1A. You might wait to assign GW1B until tomorrow.

Day 2 **Integer exponents**

Goals for students:
- Explain why each rule of exponents work
- Simplify expressions with integer exponents

One possible in class activity: In small groups, students discuss their work from p. 4 of the handbook. Assign each group a subset of the problems and 1 generalization to present to the class. (Eg. One group might have # 1-3, another group #4-6, another #7-9, etc). After each group's brief presentation, instructor might work through several examples with students.

Suggested Homework: **MLP: GW1B**
                                      Handbook (HB): Write out examples 1 – 10 on pp. 9-11
                                      Study assignment: pp. 15 – 24 in HB

Day 3: **Factoring trinomials**

Goals for students:
- Successfully perform the operations of addition, subtraction, and multiplication of polynomials
- Successfully perform the techniques of factoring trinomials and factoring a difference of squares

Operations with polynomials are considered pre-requisite topic in this course, but they are worth reviewing briefly here. You might do 3 or so examples, especially as you discuss factoring as "undoing multiplication."

Suggested Homework: **MLP: GW2, GW3A, and GW3B**

*The factoring problems are broken up into 2 assignments for the reason mentioned in the **Suggested Homework** comments after Day 1. The three assignments combined contain 25 problems.*

Day 4: **Factoring the greatest common factor (GCF); Factoring by grouping; factoring difference of squares; and sum or difference of cubes**

Goals for students:
- Find the GCF of two terms with the same variable(s) and explain why the pattern (i.e. use lower power) works
- Factor out a binomial GCF
- Successfully perform the techniques of factoring out the GCF, factoring by grouping, factoring a sum or difference of cubes.

You might refer to the FUNMATH V e-book for ideas on teaching these topics:
http://www.math.kent.edu/ebooks/FUNMATHV/ch1_3.htm
http://www.math.kent.edu/ebooks/FUNMATHV/ch1_1.htm and
http://www.math.kent.edu/~reed/FUNMATHV/ch1_4.htm

Particularly helpful as you begin your discussion on cubes is the prep exercises in ch1_3 and 1_4 of the above e-book.

Suggested Homework: **MLP: GW4, GW5A, GW5B**
These three assignments together contain 25 problems

Week 2

LAB DAY: Depending upon what day you have lab, you might have students work on the Practice Gateway exam on MLP. This practice exam has 25 questions. The real thing, a sample of which is available on the Instructor site, has 20.

Day 1: NO CLASS: LABOR DAY (fall semester; in Spring – MLK Day)

*Day 2***: Simplify square roots and expressions containing square roots**

Goals for students:
- simplify expressions containing square roots and cube roots
- perform the operations of addition and multiply on expressions with roots

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Suggested Homework: **MML: GW6A and GW6B**
These assignments together contain 20 problems

<u>Day 3</u>: **Rational exponents and their relationship to radicals**

Goals for students:
- Change a radical expression into one with a rational exponent and vice versa
- Simplify expressions using rational exponents

You might review the rules of exponents for integers and note that we extend these rules to expressions containing rational exponents.
Please refer students to the excellent examples on pp. 30 – 32 in the handbook.
Try to allow some time for group work or student blackboard work. You might ask students to work on p. 33 together.

Suggested Homework: *MML:* **GW 7**

<u>Day 4</u>: **Lab Day:**
Finish work with rational exponents and/or allow students some time to work on the practice exam on MyLabsPlus.