A Self-Directed Refresher in Basic Math Skills

All GCU students are required to take a 100-level math course depending on their major. For example, majors in Criminal Justice, Psychology, Social Work, Nursing, Exercise Science and others take MA103. Teacher Education candidates take MA105 and MA106. Business majors take MA107. Majors in math and science typically start with MA109 or MA115. Consult your placement letter about which of these college-level math courses matches your intended major.

If your SAT score suggests that you are not quite ready for a 100-level course, you will be pre-enrolled in SD100 this fall. SD100 does not count for credit toward graduation, but it will prepare you to move into college level math in the following semester.

On the first day of class in SD100, you will have the opportunity to test into your target college-level mathematics course and to start immediately with that course instead of SD100.

***We strongly advise that you prepare for the placement exam to improve your chances of taking the college-level math course you need and avoid a semester's delay in SD100*.**

Students who are self-directed and motivated can use this summer to complete some video lessons grouped into the following topics.

Although the list of videos seems long, each is very short and many of them will be a review of materials you have learned before. **Complete each lesson**, moving quickly through the ones that are already familiar and spending more time on the more challenging ones.

There are about 90 days in a summer, so you could work through all the sections at a comfortable pace.

How many lessons can you complete before the summer ends?

Refresher for MA 103, MA 105, and MA 107: Module 1

Refresher for MA106: Modules 1, 2

Refresher for MA109: Modules 1, 2, 3

Directions: Click on the URL and complete the topics on the left side of the webpage for each section. Then at the end of the list, there is a link called **Next section,** which will bring you to the next section you must complete. The modules and topics are listed below:

Module 1: Real Numbers

1.1. **Distributive Property**: Go through each topic in:

http://www.khanacademy.org/math/arithmetic/number-properties/v/distributive-property-example-1

Then go to **Next section→**

- **Arithmetic properties**

1.2 Prime numbers: Go through each topic in:

http://www.khanacademy.org/math/arithmetic/factors-multiples/v/prime-numbers

Then go on to **Next section(s)→**

- **Prime Factorization→**
- **Least Common Multiple→**
- **Greatest Common Factor**

1.3 Fractions: Go through each topic in:

http://www.khanacademy.org/math/arithmetic/fractions/v/adding-and-subtracting-fractions

Then go to **Next section(s)**→

- **Adding and subtracting fractions→**
- **Adding and subtracting with unlike denominator word problems→**
- **Multiplying fractions→**
- **Multiplying fractions word problems→**
- **Mixed numbers and improper fractions→**
- **Mixed number addition and subtraction→**
- **Mixed number multiplication and addition→**
- **Decimals and fractions→**
- **Dividing fractions→**
- **Dividing fractions by fractions→**
- **Number sets**

1.4 Positive and Negative Real Numbers: Go through each topic in:

http://www.khanacademy.org/math/arithmetic/negative-numbers/v/negative-numbers-introduction

Then go to **Next section(s)→**

- **Absolute value→**
- **The world of exponents→**
- **The square root→**
- **Order of Operations (PEMDAS) →**
- **Fractions→**
- **Decimal fractions and percentages→**
- **Operations with decimals→**
- **Perimeter and area of triangles→**
- **Circumference and area of circles**

1.5 Addition of Real Numbers: Go through each topic in:

http://www.khanacademy.org/math/arithmetic/addition-subtraction/v/adding-negative-numbers

Then go to **Next section(s) →**

- **Multiplying and Dividing Negative Numbers**
- **Absolute Value**

1.6 Subtraction of Real Numbers: Go through each topic in:

http://www.khanacademy.org/math/arithmetic/addition-subtraction/v/adding-subtracting-negative-numbers

1.7 Exponential Notation and Order of Operations: Go through each topic in:

http://www.khanacademy.org/math/arithmetic/order-of-operations/v/more-complicated-order-of-operations-example

1.8 Applications of Percent: Go through each topic in:

http://www.khanacademy.org/math/arithmetic/percents/v/describing-the-meaning-of-percent

Then go to **Next section(s)→**

- **Percent Word Problems→**
- **Estimation and Rounding with decimals→**
- **Significant figures→**
- **Moving decimal to multiply and divide by 10**

1.9 Set Theory: Go through each topic in:

https://www.khanacademy.org/math/probability/independent-dependent-probability/basic_set_operations/v/intersection-and-union-of-sets

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Additional topics for MA 106 and MA 109**

Module 2: Algebra

2.1. Introduction to Algebra: Go through each topic in:

http://www.khanacademy.org/math/algebra/solving-linear-equations/v/simple-equations

Go through each topic in:
http://www.khanacademy.org/math/algebra/ck12-algebra-1/v/variable-expressions

Then go to **Next section(s)→**

- **Manipulating expressions→**
- **Writing and interpreting expressions→**
- **Algebraic expressions with fractions→**
- **Getting a feel for equations and inequalities→**
- **Working with units algebraically**

2.2. Solving Equations: Go through each topic in:

http://www.khanacademy.org/math/algebra/solving-linear-equations/v/solving-one-step-equations

Then go to **Next section(s)→**

- **Linear equation word problems→**
- **More fancy equations for beginners→**
- **Solutions to linear equations→**
- **Solving for a variable→**
- **Converting repeating decimals to fractions→**
- **Simplifying complicated equations→**
- **Evaluating expressions with unknown variables→**
- **More equation practice→**
- **Old School equations with Sal**

2.3 *FOR MA 106 **Graphing Linear Equations:** Go through each topic in:

http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/v/ordered-pair-solutions-of-equations

2.3 *FOR MA 109 ONLY **Graphing Linear Equations:** Go through each topic in:

http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/v/ordered-pair-solutions-of-equations

Then go to **Next section(s)→**

- **Graphing with intercepts→**
- **Slope of a line→**
- **Graphing linear equations in slope-intercept form→**
- **Constructing equations in slope-intercept form→**
- **Graphing linear equations**

Module 3: Polynomials and Factoring

3.1 **Polynomials:** Go through each topic in:

https://www.khanacademy.org/math/algebra/multiplying-factoring-expression/polynomial_basics/v/polynomials1

Then go to **Next section(s)→**

- **Multiplying polynomials**

Go through each topic in:

https://www.khanacademy.org/math/algebra2/polynomial_and_rational/dividing_polynomials/v/dividing-polynomials-1

Go through each topic in:

https://www.khanacademy.org/math/algebra/exponent-equations/simplifying-radical-expressions/v/how-to-rationalize-a-denominator

3.2. **Factoring:** Go through each topic in:

http://www.khanacademy.org/math/algebra/polynomials/v/monomial-greatest-common-factor

Then go to **Next section(s)→**

- **Multiplying binomials→**
- **Factoring simple expressions→**
- **Factoring quadratic expressions→**
- **Factoring special products→**
- **Factoring by grouping**

3.3. **Rationalizing a denominator:** Go through each topic in:

https://www.khanacademy.org/math/algebra/exponent-equations/simplifying-radical-expressions/v/how-to-rationalize-a-denominator