MATH Guided Self-Placement
Lake Superior College

Directions:
For each question, rate your confidence level with the following problems.

Are you confident in your ability to solve this problem? (Try the problem, do you get the same solution?)

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

After each section, you will be asked to add up your score for that section. There will be a recommended course placement, or you will be asked to move on to the next section.

Where to start...
Did you complete any of the following courses with a grade of A or B?

You may start the assessment in the section listed next to the highest-level course. Notice there is a column for A or B grade and C or Below grade.

<table>
<thead>
<tr>
<th>Class...</th>
<th>Earned A or B? Start at...</th>
<th>Otherwise, start at...</th>
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<td>× Arithmetic</td>
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<td>× Calculus</td>
<td>Contact your advisor</td>
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<td>× Statistics</td>
<td>Section C</td>
<td>Section B</td>
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</table>

This guided self-placement is to help guide you to registering for the correct course. **You may look at other sections if you feel your placement is too high or too low.**

Please contact an advisor if you need additional help: Professional Advising – pat@lsc.edu or 218-733-7603.

Please note: There is specific information at the end of the assessment to answer frequently asked math questions. Please check it out.

**Frequently asked questions addressed:**

- What classes are offered?
- What class should I take for my major?
- Face-to-Face or Online... Which should I take?
- I have to take a developmental class, which one should I take?
- What is ABE, Adult Education?

*Note: Students who feel the recommended placement does not accurately describe their math abilities or need help should contact Professional Advising at pat@lsc.edu or 218–733-7603.*
Section A – Basic Arithmetic Skills

1) Multiply without using a calculator

358 \times 1709 \quad \text{Solution: } 611,822

Are you confident in your ability to solve this problem? 

Score: 

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

2) Add without using a calculator and put in simplest form

\frac{7}{18} + \frac{5}{6} \quad \text{Solution: } \frac{11}{9} \text{ or } 1 \frac{2}{9}

Are you confident in your ability to solve this problem? 

Score: 

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

3) Subtract without using a calculator

-23 - (-144) \quad \text{Solution: } 121

Are you confident in your ability to solve this problem? 

Score: 

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

4) Simplify:

\sqrt{36} \quad \text{Solution: } 6

Are you confident in your ability to solve this problem? 

Score: 

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.
5) Write $\frac{5}{16}$ as a decimal and a percent  

Solutions: 0.3125

31.25%

Are you confident in your ability to solve this problem?  
Score: ____________

2 – Yes, I am confident in my ability to solve this problem.  
1 – Yes, I am confident, but I would need assistance/a quick refresher.  
0 – no, I am not confident in my ability to solve this problem.

6) Multiply without using a calculator and put in simplest form  

\[
\left( -\frac{8}{15} \right) \left( \frac{5}{12} \right) \left( \frac{1}{3} \right)
\]

Solution: $-\frac{2}{27}$

Are you confident in your ability to solve this problem?  
Score: ____________

2 – Yes, I am confident in my ability to solve this problem.  
1 – Yes, I am confident, but I would need assistance/a quick refresher.  
0 – no, I am not confident in my ability to solve this problem.

Stop!

Which of the 4 best describes your confidence in your ability for this section:

- If you do not feel confident in your ability to solve 3 or more of these problems, or

- You feel confident or confident with assistance/refresher for 4 of the questions, but you don’t have good reading/writing skills...

**Placement Recommendation:**
You should contact an advisor to discuss ABE options or taking a refresher course before a college course. A description of the ABE options and Math study skills are at the end of this document.

- You feel confident or confident with assistance/refresher for 4 of the questions, AND you have good reading/writing skills continue on to **Section B.**

- You feel confident or confident with assistance/refresher or for 5 or more of the 6 questions, then you should continue on to **Section B.**

*Note: Students who feel the recommended placement does not accurately describe their math abilities or need help should contact Professional Advising at pat@lsc.edu or 218–733-7603.*
Section B – Algebra 1 Skills

1) Evaluate without a calculator:

\[ 8^2 - 2(30 - 2 \cdot 4) \]

Solution: 20

Are you confident in your ability to solve this problem?  Score: ____________

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

2) Solve

\[ 3(x + 4) - 5x = 7 + x \]

Solution: \( x = \frac{5}{3} \)

Are you confident in your ability to solve this problem?  Score: ____________

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

3) Solve:

\[ \frac{3}{4}x - \frac{5}{6} = \frac{2}{3} \]

Solution: \( x = 2 \)

Are you confident in your ability to solve this problem?  Score: ____________

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

Add up your score from each question in this section.  If your score is

4, 5 or 6 – go to the next section

0, 1, 2 or 3 – Course Recommendations (go no further on the assessment)

• MATH 0460 Algebra I or
• MATH 0501 Math Foundations

*Note: Students who feel the recommended placement does not accurately describe their math abilities or need help should contact Professional Advising at pat@lsc.edu or 218–733-7603.
1) Graph the linear equation $4x - 3y = 12$

Solution: 

Are you confident in your ability to solve this problem?

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.  
Score: ____________

2) Multiply
$(3x + 5)(3x - 4)$

Solution: $9x^2 + 3x - 20$

Are you confident in your ability to solve this problem?

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

Score: ____________

3) Factor
$x^2 - 4x - 21$

Solution: $(x - 7)(x + 3)$

Are you confident in your ability to solve this problem?

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

Score: ____________

Stop!

Add up your score from each question in this section. If your score is 3, 4, 5 or 6 – go to the next section or

- Course Recommendations –
- MATH 1105 Mathematical Reasoning or
- MATH 1115 Contemporary Mathematics or
- MATH 2210 General Statistics with instructor consent

0, 1, 2 – Course Recommendations (go no further on the assessment)

- MATH 0460 Algebra I or
- MATH 0501 Math Foundations

*Note: Students who feel the recommended placement does not accurately describe their math abilities or need help should contact Professional Advising at pat@lsc.edu or 218–733-7603.
Section D - Algebra II Skills

1) Solve:
\[
\frac{4}{x-3} - \frac{6}{x+1} = 1
\]
Solution: 5, -5

Are you confident in your ability to solve this problem?
Score: __________

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

2) Solve:
\[
\sqrt{x} + 12 - \sqrt{x} = 2
\]
Solution: 4

Are you confident in your ability to solve this problem?
Score: __________

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

3) Rewrite \( f(x) = x^2 - 8x + 23 \) in the form
\[
f(x) = (x - h)^2 + k \text{ by completing the square.}
\]
Solution: \( f(x) = (x - 4)^2 + 7 \)

Are you confident in your ability to solve this problem?
Score: __________

2 – Yes, I am confident in my ability to solve this problem.
1 – Yes, I am confident, but I would need assistance/a quick refresher.
0 – no, I am not confident in my ability to solve this problem.

Add up your score from each question in this section. If your score is
4, 5 or 6 – Go on to the next section.
0, 1, 2 or 3 – Course Recommendations (go no further on the assessment)
- MATH 0470 Algebra II or
- MATH 0501 Math Foundations or
- MATH 1105 Mathematical Reasoning or
- MATH 2210 General Stats

*Note: Students who feel the recommended placement does not accurately describe their math abilities or need help should contact Professional Advising at pat@lsc.edu or 218–733-7603.
Section E – College Algebra Skills

1) Identify the domain of the function
   \[ f(x) = \frac{x-4}{(x^2-9)} \]
   Solution: \( \mathbb{R} \neq -3, 3 \)
   
   Are you confident in your ability to solve this problem?  
   Score: ____________
   
   2 – Yes, I am confident in my ability to solve this problem.  
   1 – Yes, I am confident, but I would need assistance/a quick refresher.  
   0 – no, I am not confident in my ability to solve this problem.

2) Find the vertex, x-intercept(s) and y-intercept, of the parabola
   \[ f(x) = 2x^2 - 3x + 1 \]
   Solution: Vertex: \( (3/4, -1/8) \)  
   x-int: \( (1/2, 0), (1, 0) \)  
   y-int: \( (0,1) \)
   
   Are you confident in your ability to solve this problem?  
   Score: ____________
   
   2 – Yes, I am confident in my ability to solve this problem.  
   1 – Yes, I am confident, but I would need assistance/a quick refresher.  
   0 – no, I am not confident in my ability to solve this problem.

3) Solve for \( x \):
   \[ \log_3 x = 2 \]
   Solution: \( x = 9 \)
   
   Are you confident in your ability to solve this problem?  
   Score: ____________
   
   2 – Yes, I am confident in my ability to solve this problem.  
   1 – Yes, I am confident, but I would need assistance/a quick refresher.  
   0 – no, I am not confident in my ability to solve this problem.

Add up your score from each question in this section. If your score is

4, 5, or 6 – Contact Advisor to see if you qualify for Calculus I.

0, 1, 2 or 3 – Course Recommendations
   ▪ MATH 1100 College Algebra or
   ▪ MATH 1150 Pre-Calculus
   ▪ MATH 2210 General Statistics

*Note: Students who feel the recommended placement does not accurately describe their math abilities or need help should contact Professional Advising at pat@lsc.edu or 218–733-7603.
Information about Math Classes at LSC

Frequently asked questions addressed below:
- What classes are offered?
- What class should I take for my major?
- Face-to-Face or Online... Which should I take?
- I have to take a developmental class, which one should I take?
- What is ABE, Adult Education?

Currently offered Math Courses at Lake Superior College

Developmental Courses – These courses are meant to get you ready for your program or for college level mathematics. They may be a pre-requisite for program entry or for math courses with course numbers 1000 or higher. The do not count towards your degree credits. Here is the link to the LSC catalog, page numbers are given next to the course.

- ABE 0301 Pre-Algebra, page 143 (also, see last page of this document)
- ABE 0310 Pathways to College Success, page 143 (also, see last page of this document)
- MATH 0460 Algebra I, page 239
- MATH 0470 Algebra II, page 239
- MATH 0501, 0502, 0503 Math Foundations Sequence, page 239 - 240

College Level Courses – These courses are credit courses toward your degree or program. Here is the link to the LSC catalog, page numbers are given next to the course.

- MATH 1100 College Algebra, page 240
- MATH 1105 Mathematical Reasoning, page 240
- MATH 1115 Contemporary Mathematics, page 241
- MATH 1125 Finite Math and Survey of Calculus, page 241
- MATH 1150 Pre-Calculus, page 241
- MATH 2204 Calculus I, page 241
- MATH 2205 Calculus II, page 241
- MATH 2206 Calculus III, page 241
- MATH 2210 General Statistics, page 241
- MATH 2220 Differential Equations with Linear Algebra, page 242

*Note: Students who feel the recommended placement does not accurately describe their math abilities or need help should contact Professional Advising at pat@lsc.edu or 218–733-7603.
What college level classe(s) should I take for my major?

You should talk to your advisor to make sure you are signing up for the right class for your major. Here are suggestions from the Math Department depending on your field of interest. You should also take into consideration if you will be transferring to a 4-year school/program.

<table>
<thead>
<tr>
<th>STEM: Science, Technology, Engineering, and Math</th>
<th>Business and Finance</th>
<th>Liberal Arts and Allied Health and Nursing</th>
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<tbody>
<tr>
<td>Math 1100 College Algebra</td>
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</tr>
<tr>
<td>MATH 1115 Contemporary Math (geared towards trades)</td>
<td>MATH 1125 Finite Math and Survey of Calculus</td>
<td>MATH 1105 Mathematical Reasoning</td>
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<td>MATH 2204 Calc Sequence</td>
<td></td>
<td>MATH 2210 General Stats</td>
</tr>
</tbody>
</table>

Should I take Face-to-Face or Online classes?

You should take **Face-to-Face** classes...
- If you like being in a classroom
- Need to have an instructor to ask questions as they come up
- Want to have a set schedule to meet and learn math

You should take **online** math classes...
- If you like working on a computer
- Feel comfortable working independently
- Like watching lecture videos on our own for content delivery
- Can keep to a schedule

*Note: Students who feel the recommended placement does not accurately describe their math abilities or need help should contact Professional Advising at pat@lsc.edu or 218–733-7603.*
What about developmental math classes?
There are so many choices.
MATH 0460 Algebra I and 0470 Algebra II, MATH 0501 Math Foundations series
Online, in a computer lab, Face-to Face??

Start Here

• Do you like working with computers? Or
• Do you just need a refresher

Do you feel comfortable working independently and watching lecture videos on your own time for course content delivery?

YES

Suggested course: Math 0460/0470 taken on ground
Math 0460/0470 taken on ground: This is a traditional on ground math class setting with a teacher delivering the course content. The class meets regularly during its scheduled hours and has set due dates and a schedule by the instructor.

NO

• Do you just need a refresher course?
• Do you need more time to complete assignments?
• Do you like to in a classroom environment?

Suggested course: Math 0460/0470 taken online
Math 0460/0470 taken online: This online format does not have scheduled meeting times but has up to 2 proctored tests during the semester. There is still a set schedule and due dates set by the instructor. Delivery of content will be through watching videos, use of the textbook, or other resources provided by the instructor (no direct face-to-face time). Working well independently is recommended for success in this online setting.

NO

YES

Suggested course: Math 0501 series taken in a computer lab
Math 0501 in a computer lab: This is a non-traditional self-paced on ground math class taken in the computer lab with the instructor in the lab for assistance. Course content delivery will be through watching videos and use of tools that come with the e-book, such as animations and step-by-step help tools for each problem. There are no set deadlines and work can be done in the lab and/or outside of class. Exams are taken during one of the scheduled class times. Working well independently is recommended for success in this computer lab setting.

*Note: Students who feel the recommended placement does not accurately describe their math abilities or need help should contact Professional Advising at pat@lsc.edu or 218–733-7603.
What is ABE, Adult Education?
I have been referred to ABE. What class should I take?

The mission of ABE in Minnesota is to provide adults with educational opportunities to acquire and improve the math and literacy skills needed to become self-sufficient and to participate effectively as productive workers, family members, and citizens. ([http://mnabe.org/about-abe-in-mn](http://mnabe.org/about-abe-in-mn))

Lake Superior College Adult Education provides academic support and preparations for your college credit bearing courses.

Learners will participate in whole class instruction while also working independently and/or in small groups on the math skills in their personally assessed area of need. The goal of Adult Education courses is to assist in transitioning students who want to build and/or refresh college level skills. Some basic computer skills are addressed.

ABE 0310 & ABE 0301 are free courses designed to prepare learners who are not yet ready for college ready math.

Lake Superior College Catalog
- **ABE 0310 Pathways to Math & College Success** (page 143)
  This course is designed to increase your math numeracy skills, habits, and mindset.
  This course is for you if you feel you need a college **MATH PREPARATION COURSE** in the following content areas:
  - Add, subtract, multiply, and divide whole numbers, decimal numbers, fractions and integers
- **ABE 0301 Pre-Algebra** (page 143)
  This course is an accelerated model of the Pathways to Math & College Success.
  This course is for you if you need a college **MATH REFRESHER COURSE** in the following content areas:
  - ABE 0310 review; positive/negative integers, fractions, decimals, ratio/proportions, percent, basic algebra expressions and unit measurements.
- **ABE 0312 Pathways to Read/Write & College Success** (page 143 and refer to Read/Write Guided Self- Placement)

For additional Adult Education Information please call:
- **Lake Superior College; Adult Education Office:** (218) 733-6922
- **ISD 709 Duluth Public Schools; Adult Education Office:** (218) 336-8790

*Note: Students who feel the recommended placement does not accurately describe their math abilities or need help should contact Professional Advising at pat@lsc.edu or 218–733-7603.*