NORTHERN ILLINOIS UNIVERSITY  
Testing Services and Department of Mathematical Sciences  
MATH 201 Proficiency Examination

Eligibility. Persons with an extensive background in mathematics may consider satisfying the MATH 201 prerequisite to MATH 402 by passing an examination demonstrating proficiency in the content of MATH 201. An application to take the examination must be completed. The application is available from the office of the Department of Mathematical Sciences, Watson Hall 320. After review of your application, you will receive (by mail) a permit to take the exam, or a written notice of the reasons for the rejection of your request to take the exam.

Registration procedure. To set up an appointment to take the exam, bring your permit to test, issued by the Department of Mathematical Sciences, and photo identification to the Testing Services, Adams 128. Telephone: (815)753-1203.

Topics included in the examination. NOTE: Each topic includes THEORY; computational facility is NOT sufficient.

- Problem-solving heuristics
- Set Theory
- The whole number system
- Number Theory
- Rational numbers (Fractions and Decimals)

- Ratio and Proportions (including Percents)
- Number systems (including signed numbers)
- Geometry and Measurement
- Statistics and Probability

Form of the exam. The exam consists of 50 multiple choice questions. As noted above, computational facility is not sufficient. Sample questions appear on the reverse of this sheet. You will have two hours to complete the exam. The passing score is 70%. The use of a calculator is NOT permitted for this exam.

Preparation for the exam. Preparation for the exam should be taken seriously; fewer than 1/3 of those who have recently tested have passed. To prepare for the exam, you may wish to use the current textbook for MATH 201. This textbook may be obtained from the textbook section of the University bookstore.

Test results. You will receive written notification of your results within 10 days of the examination. If you pass, you will receive three hours of proficiency credit for MATH 201. There is no penalty for failing; however, only one attempt at the examination is allowed.

Additional questions? Contact: Chair, Teacher Education Committee, Department of Mathematical Sciences. Telephone: (815)753-0566.

NOTE: Students may not earn proficiency credit for a course for which they have received credit; nor may they receive proficiency credit for courses which substantially overlap or are prerequisite to any in which they are enrolled or for which they have received credit. A student may attempt to gain proficiency credit for a particular course only once. (Academic Regulations – Proficiency Examinations, NORTHERN ILLINOIS UNIVERSITY UNDERGRADUATE BULLETIN.)
SAMPLE QUESTIONS

1. For which of the diagrams does \( n(A \cap \overline{B}) = n(A) - n(B) \)? [Here \( n(A) \) = number of members of \( A \), \( \overline{B} \) = complement of \( B \).]

(a)  
\[
\begin{array}{c}
A \\
B
\end{array}
\]

(b)  
\[
\begin{array}{c}
A \\
\bigcap \\
B
\end{array}
\]

(c)  
\[
\begin{array}{c}
A \\
\bigcap \\
B
\end{array}
\]

(d)  
\[
\begin{array}{c}
A \\
\bigcap \\
B
\end{array}
\]

2. Find \( 24_5 \times 32_5 \).

(a) \( 768_5 \)  (b) \( 1323_5 \)  (c) \( 1423_5 \)  (d) \( 231_5 \)

3. Which of the following properties holds for division of rational numbers?

(a) Identity  (b) Closure  (c) Commutativity  (d) Associativity

4. Approximate the area of the region below.

\[
\begin{array}{c}
5 \text{ units} \\
\hline \\
30 \text{ units}
\end{array}
\]

(a) 159.8 sq. units  (b) 169.6 sq. units  (c) 189.3 sq. units  (d) 228.5 sq. units

5. If the ratio of boys to girls in a class is 3:5, and there are 40 students in the class, how many are boys?

(a) 15  (b) 16  (c) 20  (d) 24

KEY: 1. (c), 2. (c), 3. (a), 4. (a), 5. (a)