

*University of the State of New York*  
**Examinations Department**

81st examination

**ADVANCED ARITHMETIC**

**Monday, June 13, 1892 — 9:15 a. m. to 12:15 p. m., only**

*48 credits, necessary to pass, 36*

NOTE.—Give each step of solution, indicating the operations by appropriate signs. Use cancellation when possible. Reduce fractions to lowest terms. Express final result in its simplest form and mark it *Ans.*

1. Prove that in division of fractions, multiplying the dividend by the divisor inverted will produce the quotient. 5
2. State how you determine whether a given common fraction can be exactly expressed as a decimal, and give reasons. 5
3. What factors of two or more numbers must be combined to produce their greatest common divisor and what ones to produce the least common multiple? Give reasons. 5
4. Divide 426.0379 by 24.89371 by the contracted method, extending the quotient to three places of decimals. 4
5. A is in longitude 18° E. and B 23° W.; find the difference of time between A and B and give the reason for each step in the process. 5
6. Find the depth of a cylindric cistern whose bases are 8 ft. in diameter and whose capacity is 100 barrels. 4
7. Find the greatest common divisor and the least common multiple of  $\frac{4}{5}$ ,  $\frac{5}{9}$ ,  $\frac{3}{4}$ . Explain the process fully. 6
8. What would be the present worth of \$435.96 due in 3 years without interest, if money were loaned at 4% per annum compound interest? 5
9. Assuming that attraction varies directly as the mass and inversely as the square of the distance, find the ratio between the attractive forces exerted by two bodies whose weights are respectively 15 lbs. and 20 lbs. and whose distances from the body acted on are 10 ft. and 18 ft. respectively. 5
10. What is the value in gold of \$1.00 in paper currency when gold is quoted at 10% premium? At what price would gold be quoted when paper currency is worth 75% of its face value? 4