University of the State of New York

Examinations Department

111th examination

ALGEBRA

Wednesday, June 14, 1893—9:15 a. m. to 12:15 p. m., only

100 *credits, necessary to pass*, 75

NOTE—Give each step of solution. Reduce fractions to lowest terms. Express final result in its simplest form and mark it *Ans.*

1 Define *elimination, exponent, equation, root of equation, polynomial.* 10

2 Simplify $\frac{a}{b}\left(\frac{a+b}{a-b}-\frac{a-b}{a+b}\right)\left(\frac{(a-2b)(a+2b)+3b^2}{2a^2}\right)$. 10

3 Factor $6a^2+13ab+6b^2$; 4

$1+a-b-ab$; 4

$12a^2-27b^2$. 4

4 Solve $\begin{cases} 3x+4y=26 \\ \frac{3x}{2}+\frac{2y}{5}=5 ; \end{cases}$ 10

$\begin{cases} ax-\frac{a^2}{b}+3y=\frac{3a}{2b} \\ x-\frac{3a}{b}\quad\quad=by ; \end{cases}$ 12

$3b^2x^2+2b^2x=3a^2+2ab.$ 10

5 The difference between two numbers is 2, and the sum of their squares is 10; find the numbers. 12

6 Write the fifth power of a^2+2b, and give all the operations for finding the coefficients. 12

7 Simplify $\frac{1}{2}\sqrt{\frac{2}{3}}$, $\sqrt[3]{56}$, $\sqrt{\frac{1}{8}}\times\sqrt[3]{\frac{1}{2}}$. 12