

University of the State of New York.

18th Advanced Academic Examination.

ALGEBRA.

(Through Quadratics)

February, 1884—Time two and one-half hours only.

48 credits, necessary to pass, 36.

1. Define monomial, exponent, root of an equation, simultaneous equations 4
2. Divide $x^4 - 4a^2x + 3a^4$ by $x^2 + 2ax + 3a^2$ 3
3. Find the prime factors of $3a^5 - 48ax^4$ 3
4. Divide $\frac{4(a^2 - ab)}{b(a + b)^2}$ by $\frac{6ab}{a^2 - b^2}$ 2
5. Is $a^m a^n a^r$ equal to a^{mnr} , or to a^{m+n+r} ? Show that your answer is correct..... 3
6. Solve $1 - \frac{c + m}{x} = am$ 3
7. Solve $ax - by = c$ and $2x - 3y = 4$ 3
8. The owners of a certain mill make a dollars a day each, sharing equally. If the number of owners were b less, they would make c dollars each. Required the number of owners and the total daily profit of the mill..... 4
9. Expand $(a^2 - 2x)^5$ by the binomial theorem, and give the law of co-efficients used in such expansion..... 5
10. Extract the square root of $4a^8 + 16c^6 + 16a^6c^2 - 32a^2c^6$. 5
11. Given $x^2 + xy + y^2 = 7$, and $2x^2 + 3xy = 14$, to find x and y 5
12. Form the equation whose roots are 7 and -3 2
13. Solve $x^4 - 13x^2 = -36$, finding the four roots 4
14. Solve $mx^2 + n = q$ 2

Carefully read and obey the following directions:

Do you now, at the close of this examination, conscientiously declare, that you had no previous knowledge of the questions to be proposed, that you have neither given to any other scholar, nor received from any source, explanations or other aid in answering any of them. If so, write in the next line after the end of your set of answers, near the right side of the paper, the words

"I do SO declare,"

and underneath subscribe your name.

Every set of papers lacking this full declaration and signature, however satisfactory in other respects, will be rejected, on the presumption that the required declaration could not conscientiously be made.

Fold your MS. in proper form for filing, and endorse the last leaf with the name of the institution, your own name, the subject, and the date of the examination