The University of the State of New York
225TH HIGH SCHOOL EXAMINATION

ELEMENTARY ALGEBRA

Wednesday, June 15, 1921—9.15 a.m. to 12.15 p.m., only

Write at top of first page of answer paper (a) name of school where you have studied, (b) number of weeks and recitations a week in elementary algebra.

The minimum time requirement is five recitations a week for a school year.

Answer question 1 and five of the others. Credit will not be granted unless all operations (except mental ones) necessary to find results are given; simply indicating the operations is not sufficient. Each answer should be reduced to its simplest form.

1. a Multiply $3x^2 - x - 5$ by $2x^2 + 5x$ and check, letting $x = 2$. Multiplication [4], check [2]

b Factor four of the following:
$7x^2 - 7x$
$m^2 + 6m + 7$
$3x^2 - 2xy - 8y^2$
$a^2x^2 + 6ax^2y + 9axy^4$
$9a^2x^2 - 4bc + 4c^2 - b^2$
[No partial credit allowed on any part.]

c Represent as a single fraction in its lowest terms:
$\frac{4x}{x^2 - 3} + \frac{2}{2 - x}$
$\frac{6x}{x^2 - 3x - 10}$
Addition [4], division [2]

d Solve for $x$ and $y$:
$\frac{3x}{a} + \frac{2y}{b} = 3$
$\frac{2x}{a} - \frac{2y}{b} = -5$
First solution [4], second solution [2]

2. Simplify each of the following radicals and unite the results into a single term:
$\sqrt[3]{27x^3} - \sqrt[3]{(7x - 2)^3} + 6\sqrt[3]{\frac{3x^3}{3}}$
First [1], second [1], third [2], uniting [2]

3. Multiply $2\sqrt{6} + 3\sqrt{3}$ by $3\sqrt{3} - 5\sqrt{6}$ and simplify. Multiplying [4], simplifying [2]

4. Solve and check:
$\frac{x}{x+2} = \frac{x+2}{2x} - \frac{1}{2}$
Solution [4], check [2]

5. Solve and check:
$\frac{3}{5}(x - 7) = \frac{2x - 11}{5} - \frac{3x - 2}{2x - 5}$
Solution [5], check [1]