University of the State of New York

210TH HIGH SCHOOL EXAMINATION

ELEMENTARY ALGEBRA

Monday, January 19, 1914—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 the first six questions and two 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 Find the prime factors of x^2-x-30; $16-2m^3$; $1-x^4$; $2ab-cx+2c-acx$

2 Subtract $-3x-2(6y-2z)$ from $8x-\overline{z+2y}$ and add the result to $6z-(3y-4x)$. [No partial credit will be granted on the answer to this question.]

3 Simplify $\left(\frac{2}{x+y}\right)\left(\frac{2x^2}{x^2-y^2}+\frac{x+y}{2(x-y)}-\frac{x-y}{2(x+y)}\right)$

4 Solve for a and b $\begin{cases} a-\frac{3b}{2}=\frac{1}{2} \\ 3a+7b=13 \end{cases}$

5 Solve $(x-6)^2-(2x-5)^2=16$

6 One number is twice another number; when the smaller is subtracted from 32 the remainder is 11 less than the remainder when the larger is subtracted from 50. Find the numbers.

7 Solve and test $3(x+1)(x-3)-(3-x)^2=8(2x-3)+2x^2-26$

8 *a* Reduce to radicals of the same degree $\sqrt{2}$, $\sqrt[3]{3}$, $\sqrt[4]{2}$

b Perform the indicated operations $(2-\sqrt{5})^2(1-2\sqrt{5})$; $2\sqrt{6}+\sqrt[3]{3}$

9 The length of a rectangle is 15 ft greater than its width; if each dimension is decreased 2 ft, the area will be decreased 106 sq. ft. Find the dimensions.

10 *a* The dividend is m, the divisor is n, the remainder is r; what is the quotient?

b A house cost a dollars and rents for s dollars a month; what per cent per annum is the income of the investment?