## University of the State of New York

## 201ST HIGH SCHOOL EXAMINATION

## ADVANCED ARITHMETIC

Friday, June 10, 1910—9.15 a. m. to 12.15 p. m., only

Write at the top of the first page of your answer paper (a) the name of the school where you have studied, (b) the number of weeks and recitations a week that you have had in advanced arithmetic.
Two recitations a week for a school year or four recitations a week for half a school year), in a recognized academic school, is the regular requirement, and any statement showing less or other than this should be accompanied by a satisfactory claim or explanation made by the candidate and certified by the principal; otherwise such paper will be returned.

Answer eight questions, selecting two from each group. No credit will be allowed unless all operations (except mental ones) necessary to find results are given; simply indicating the operations is not sufficient.

I Show why the product of two or more proper frac-

tions is less than the least of the fractions.

2 Any two numbers are multiplied together; each of the numbers is increased by I and these two sums are multiplied Prove that the difference of the two products is equal to the sum of the first two numbers plus 1. Mere illustration will not be accepted.]

3 A pole was 2 under water; the water rose 9 feet after which there was as much of the pole under water as had been

above water before; find the length of the pole.

Group II 4 Extract the cube root of 13 to four decimal places.

5 A and B pay \$1.30 for a quart of varnish and 10¢ for the can; A contributes 70¢ and B contributes the remainder; they divide the varnish equally and A keeps the can. Which owes the other and how much?

6 A house cost \$4000; the insurance is \$8, taxes \$50 and repairs \$67 a year. Find the rent that must be received in

order to realize 6% on the investment.

Group III 7 Three successive discounts of 30%, 15% and 3%

reduced a bill to \$346.29; find the original bill.

8 The capital stock of a company is \$1,000,000, one fourth of which is preferred and entitled to a 7% dividend; the remainder is common. If \$47,500 is distributed in dividends find the rate of dividend paid on the common stock.

9 Find, in United States money, the duty at 40%, on an importation of English crockery valued at £750 8s 4d [£1=\$4.86].

Group IV 10 A square field containing 10 acres is mapped to a scale of 100 feet to an inch; find the number of inches on one side of the map which represents the field.

II Six coins each of radius 2.4 cm are placed so that their centers are at the corners of a regular hexagon and each coin touches two others; find the area of that part of the hexagon that is not covered by the coins.

12 The boundaries of a square and of a circle are each 20

feet; which has the greater area and how much?