

New York State Education Department

204TH HIGH SCHOOL EXAMINATION

ELEMENTARY ALGEBRA

Monday, June 12, 1911—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. No credit will be allowed unless all operations (except mental ones) necessary to find results are given; simply indicating the operations is not sufficient.

1 Find the prime factors of each of the following and determine the lowest common multiple: $2m^6 - 2n^6$; $3m^4 - 3n^4$; $2m^2 - 2mn + 2n^2$

2 Simplify $\frac{\frac{a^2 + b^2}{a} - b}{\frac{1}{a} - \frac{1}{b}} \times \frac{a^2 - b^2}{a^2 + b^2}$

3 Reduce each of the following to its simplest form: $2\sqrt{20} \times \sqrt{27}$; $8\sqrt{15} \div 4\sqrt{5}$; $2\sqrt{\frac{3}{8}}$; $a\sqrt{4} + \sqrt{8a^2}$; $\frac{4}{4 - 2\sqrt{3}}$

4 Solve $\sqrt{3x+1} + \sqrt{x-4} = \sqrt{4x+5}$

5 Find the square root of each of the following: 95,481; $a^4 + 53a^2 + 14a + 4$

6 Expand by the binomial formula $(4a - cd)^4$, giving all the work.

7 Define power, coefficient, polynomial, transposition, root of an equation.

8 A purse contains 18 coins, some of which are quarters and the remainder dimes; if the coins are worth \$2.40 altogether how many are there of each kind?

9 Find two consecutive numbers whose product is 272.

10 Two numbers are in the ratio of 3 : 4; if 7 is subtracted from each number the remainders are in the ratio of 2 : 3. Find the numbers.