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: \(2m^6 - 2n^8; 3m^4 - 3n^4; 2m^2 - 2mn + 2n^2\)

2. Simplify \(\frac{a^2 + b^2}{a} \times \frac{\frac{a^2 - b^2}{a^2 + b^2}}{a - b}\)

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

4. Solve \(\sqrt{3x + 1} + \sqrt{x - 4} = \sqrt{4x + 5}\)

5. Find the square root of each of the following: \(95,481; a^4 + 53a^2 + 14a^3 + 28a + 4\)

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.