

**The University of the State of New York**

259TH HIGH SCHOOL EXAMINATION

**INTERMEDIATE ALGEBRA**

Thursday, January 25, 1934 — 9.15 a. m. to 12.15 p. m., only

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**Instructions**

*Do not open this sheet until the signal is given.*

*Answer all questions in part I and five questions from part II.*

*Part I is to be done first and the maximum time to be allowed for this part is one and one half hours. Merely write the answer to each question in the space at the right; no work need be shown.*

If you finish part I before the signal to stop is given you may begin part II. However, it is advisable to look your work over carefully before proceeding to part II, since *no credit will be given any answer in part I which is not correct and reduced to its simplest form.*

When the signal to stop is given at the close of the one and one half hour period, work on part I must cease and this sheet of the question paper must be detached. The sheets will then be collected and you should continue with the remainder of the examination.

# INTERMEDIATE ALGEBRA

Thursday, January 25, 1934

Fill in the following lines:

Name of school.....Name of pupil.....

Detach this sheet and hand it in at the close of the one and one half hour period.

## Part I

Answer all questions in this part. Each question has  $2\frac{1}{2}$  credits assigned to it; no partial credit should be allowed. Each answer must be reduced to its simplest form.

- 1 Factor  $2x^2 - 11x - 21$  Ans.....
- 2 Divide  $y^{n-3}$  by  $y^{2n-3}$  Ans.....
- 3 Find the value of  $b^{-\frac{3}{2}} \times 3b^0$  when  $b = 9$  Ans.....
- 4 If the value of the discriminant of a certain quadratic equation is 8, the roots are (a) real and unequal, (b) real and equal or (c) imaginary. Which is correct, a, b or c? Ans.....
- 5 Express  $\frac{3}{4 - \sqrt{11}}$  as a fraction with rational denominator. Ans.....
- 6 Solve for  $x$  the equation  $3\sqrt{2x + 2} - 5 = 0$  Ans.....
- 7 The cost of sending a package by parcel post to a city in the third zone is  $a$  cents for the first pound plus  $b$  cents for each additional pound. Write a formula for the number of cents ( $c$ ) it would cost to send a package weighing  $p$  pounds. Ans.....
- 8 Find the value of  $x$  if  $3^x = \frac{1}{81}$  Ans.....
- 9 The roots of the quadratic equation  $x^2 + bx + c = 0$  are  $4 - \sqrt{3}$  and  $4 + \sqrt{3}$ ; what is the value of  $c$ ? Ans.....
- 10 If  $x = \frac{6}{y+1} - 3y$ , does  $x$  increase or decrease as  $y$  increases from 0? Ans.....
- 11 The quadratic equation  $x^2 = 36 - 4y^2$  represents (a) a circle, (b) an ellipse or (c) a parabola. Which is correct, a, b or c? Ans.....
- 12 Write the equation of the straight line that crosses the  $y$ -axis one unit below the origin and has a slope of  $\frac{2}{3}$ . Ans.....
- 13 If  $\log \tan A = 9.6376 - 10$ , find to the nearest degree the acute angle  $A$ . Ans.....
- 14 Find the logarithm of 14.87 Ans.....
- 15 Find to the nearest foot the length of the shadow cast by a flagpole 52 feet high when the angle of elevation of the sun is  $48^\circ$ . Ans.....
- 16 Insert three arithmetic means between  $-7$  and  $7$ . Ans.....
- 17 Find the positive geometric mean between the sum of the roots and the product of the roots of the equation  $x^2 - 4x + 9 = 0$  Ans.....
- 18 Find the sum of the infinitely decreasing series  $1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \dots$  Ans.....
- 19 Write the first two terms of the expansion  $(2x^2 - 1)^5$  Ans.....
- 20 Simplify  $y(\frac{x^2}{y^2} - 1) \div x(\frac{x}{y} - 1)$  Ans.....