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University of the State of New York

Examination Department

122d examination

PLANE TRIGONOMETRY

Thursday, June 14, 1894—9:15 a. m. to 12:15 p. m., only

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100 *credits, necessary to pass,* 75

Answer questions 1–5 and five of the others but no more. *Division of groups is not allowed. If more than five of these questions are answered only the first five of these answers will be considered. Draw carefully and neatly each figure, using letters instead of numerals. Arrange work logically. Each complete answer will receive 10 credits.*

1 Define *logarithm, trigonometric function, cosine, versed sine, secant.*

2 Given the log 4=.6021, and log 3=.4771; find the logarithms of 9, 2, 12, .25, 750.

3 Give in tabular form the algebraic sign of each of the six trigonometric functions for each of the four quadrants.

4–5 The base of a right triangle is 15 feet and the sine of the adjacent acute angle is .4532; find the remaining sides and the sine, cosine and tangent of the other acute angle. (Operations may be indicated.)

6 Give in tabular form the limiting values of sine, cosine, tangent, cotangent and secant, for each of the four quadrants.

7 Given sin A=$-\frac{1}{3}$; find the values of the remaining functions of A.

8–9 Find the values of sin $(x+y)$ in terms of sines and cosines of x and y.

10 Assume a triangle whose three sides are given and show how to find its angles, writing all the formulas used.

11 Two of the sides of a triangle are 12 feet and 18 feet, and the cosecant of the angle between them is 2.5; find the area of the triangle.

12–13 Describe the process of solving the triangle in question 11, giving all formulas needed.

14–15 Show what measurements and what computations are necessary to find the hight of an inaccessible tower standing on the same horizontal plain as the observer.