University of the State of New York

Examinations Department

107th examination

PLANE TRIGONOMETRY

Thursday, January 26, 1893—9 : 15 a. m. to 12 : 15 p. m., only

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100 *credits, necessary to pass,* 75

1 Define and illustrate *cosine, angle in third quadrant, base of a logarithm, angle of elevation.*
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2 The product of what two functions of A is equal (*a*) to tan A? (*b*) to cos A? (*c*) to 1? Explain.
12

3 Trace the changes in value and sign of tan A as A increases continuously from $0°$ to $360°$.
12

4 Find sin A, cos A and cot A in terms of tan A.
12

5 Simplify and reduce $\sin(90+A)\sin(180°+A)+\cos(90°+A)\cos(180°+A)$.
10

6 Prove that $(\cos A+\sin A)^2 = 1+\sin 2A$.
8

7 Given $r^2 = \dfrac{(s-a)(s-b)(s-c)}{s}$; find log r.
8

8 If A, B and C represent the angles of a triangle, a, b and c their opposite sides respectively, what is the value of C and b when $A=45°$, $B=60°$ and $a=200$?
10

9 From C the top of a hill which is h feet above the surface of a river, the angle of depression of the nearer margin of the river is A, of the farther margin B; find in terms of h, A and B the formulas necessary to compute a (the width of the river) and d (the distance from the nearer margin to a point directly under C).
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