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University of the State of New York

Examination Department

125th examination

PLANE GEOMETRY

Wednesday, September 26, 1894 — 9 : 15 a. m. to 12 : 15 p. m., only

100 credits, necessary to pass, 75

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

- 1 Define *chord, perimeter, curved line, parallel lines, tangent.*
- 2 Prove that the perpendicular is the shortest distance from a point to a straight line.
- 3-4 Prove that an inscribed angle is measured by one half the arc included between its sides.
- 5-6 Prove that through any three points not in the same straight line one circumference may be made to pass, and but one.
- 7-8 The areas of any two similar polygons are to each other as the squares of any two homologous sides.
- 9 Find the area of a triangle each of whose sides is 12 feet.
- 10-11 Two sides of a triangle are 10 feet and 12 feet respectively, and the perpendicular from their intersection to the opposite side is 8 feet; find the area of the triangle.
- 12 Show how to construct a triangle when its three sides are given.
- 13-14 Show how to construct a rectangle which has a given base and which is equal in area to a given square.
- 15 Find the area of a sector whose arc is 15° in a circle whose radius is 15 feet.