

University of the State of New York

38TH ACADEMIC EXAMINATION

PLANE GEOMETRY

TUESDAY, June 10, 1890—Time, 9:15 A. M. to 12:30 P. M., only

36 credits, necessary to pass, 27

1. Define and illustrate perpendicular lines; polygon; rhomboid; arc; scalene triangle 10
2. State two theorems regarding the relation of angles formed by two parallel straight lines cut by a third straight line..... 2
3. Prove that two triangles are equal in all respects when three sides of the one are equal respectively to three sides of the other..... 2
4. Prove that rectangles having equal altitudes are to each other as their bases. (two cases)..... 2
5. Prove that two triangles which have an angle of the one equal to an angle of the other are to each other as the products of the sides about the equal angles..... 3
6. Prove that when two secants intersect without a circle, the angle formed is measured by one-half the difference of the intercepted arcs..... 3
7. Give brief but sufficient directions for inscribing in a circle (a) a square; (b) a regular hexagon..... 2
8. Show how the following constructions are made and that each construction meets the conditions required:
 - (a) To construct a square equal to double a given square.. 2
 - (b) To find the centre of a given circle..... 2
 - (c) To divide a line into any number of equal parts..... 2
9. The bases of a trapezoid are 32 feet and 20 feet. Each of the other sides is equal to 10 feet. Find the area of the trapezoid. 3
10. A rhombus and a square have equal perimeters; which has the greater area? What is the ratio of their areas if the altitude of the rhombus is one-half that of the square?..... 3