University of the State of New York.

36TH ACADEMIC EXAMINATION,

PLANE GEOMETRY.

TUESDAY, Jan. 21, 1890—Time, 9:30 A. M. to 12:30 P. M., only.

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36 *credits, necessary to pass,* 27.

1. Define and illustrate by a figure each of the following : alternate angles ; tangent ; secant ; circle ; circumference ; altitude ; similar polygons 7

2. Define theorem, problem 2

3. Mention four kinds of triangles named from the angles they contain 4

4. Prove that if two triangles have a side and the two adjacent angles of the one equal to a side, and the two adjacent angles of the other, each to each, the triangles will be equal in all their parts 2

5. Prove that two parallels intercept equal arcs of a circumference (three cases)... 3

6. Prove that the square described on the hypothenuse of a right-angled triangle is equal to the sum of the squares described on the other two sides....................................... 3

7. Prove that triangles which are mutually equiangular are similar 2

8. Prove that the circumferences of circles are to each other as their radii, and the areas are to each other as the squares of their radii... 2

9. Make the following constructions and show that each construction meets the conditions required:

    (*a*) To circumscribe a circle about a given triangle..... 2

    (*b*) To construct a triangle equivalent to a given polygon. 2

    (*c*) To trisect a right angle 2

    (*d*) Through a given point without a circle to draw a tangent to the circle... 2

10. Find the circumference of a circle the side of whose inscribed square is six feet.. 3