University of the State of New York

77TH EXAMINATION

CONIC SECTIONS

TUESDAY, June 9, 1891—9 : 15 A. M. to 12 : 15 P. M., only

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40 credits, necessary to pass, 30

Credits allowed each answer depend on its completeness and accuracy

NOTE.—Draw carefully and neatly each figure in construction or proof, using letters instead of numbers. Arrange work clearly and logically.

1. Given two points of a parabola and its directrix to find the focus. 3

2. Prove that the ordinate of any point of a parabola is a mean proportional between the latus rectum and the abscissa of the point. 6

3. Prove that the subtangent of a parabola is bisected at the vertex. 4

4. Describe a method of drawing an ellipse. 3

5. Prove that if d represents the abscissa of any point of an ellipse, r and r' its focal radii, $2a$ its major axis and e its eccentricity :

$$r = a + ed \text{ and } r' = a - ed.$$ 8

6. Draw a tangent and a normal at a given point of an ellipse. 6

7. Find any number of points in an hyperbola, the foci and $2a$ the constant difference being given. 4

8. Prove that, if through a point P of an hyperbola, a line be drawn, bisecting the angle formed by the focal radii, every point of this line except P is on the convex side of the curve. 6