## **CONTENTS**

снар. І.	Introduction	PAGE 1
••	Plane curves. Invariant relations. Existence theorems for implicit functions. Algebraic curves.	•
11.	THE ELEMENTARY PROPERTIES OF TANGENTS AND NORMALS.  Tangents. Normals. Arcs. Differentials. Conventions of sign. Limiting ratios of arcs, chords and tangents. Points of inflexion. Convexity and concavity.	8
III.	THE CURVATURE OF PLANE CURVES  Curvature. Circle, centre, and radius of curvature. Geometrical properties of the centre of curvature. Order of approximations to the circle of curvature. Newton's method. Direction cosines of tangent and normal, and their differentials. Frenet's formulae for twisted curves. Evolutes and involutes.	24
IV.	The theory of contact	45
v.	The theory of envelopes	58
VI.	SINGULAR POINTS OF PLANE CURVES Form of $f(x, y)$ near a singular point. Nature of the curves so defined. Branches. Possible tangents of branches at a singular point. Singular points of the second order. Isolated points, double points and cusps. Singular points of order $n$ .	80
VII.	Asymptotes of plane curves  Definition and fundamental properties. Asymptotes as limits of tangents and chords. Asymptotes of algebraic curves. Rules for rectilinear asymptotes. Parabolic and curvilinear asymptotes.	89