

of perpendicular diameters of the auxiliary circle. $a'^2 + b'^2 = a^2 + b^2$ and the circumscribing parallelogram $= 4ab$. Equation referred to conjugate diameters without proof. Hyperbola compared with the ellipse without proof. Asymptotes. Conjugate hyperbola. Conjugate diameters. Equation referred to the asymptotes without proof. Rectangular hyperbola. Similarity of curves; Newton's definition. Meaning of constants of position and constants of size and shape. Similarity of all circles and parabolas. Dissimilarity of ellipses and hyperbolas; similarity if $\frac{b}{a}$ is constant.

Application of the test of magnifying. *Marks, March, 200. Statics (Todhunter's Mechanics for beginners.)*

Chapter I. II.—Omitting proof of parallelogram of forces § 45 to end of Chapter.

Chapter III. IV. V.—Omitting § 78 to end.

Explanatory notes in lieu of Chapter VI. on the equilibrium of a body and the method of working examples. Constrained body and the principle of the lever.

Chapter VII.—§ 99; Statement of § 100; § 102, 6, *March*. Centre of parallel forces. Chapter VIII to § 113. Short notes on § 114, 15.

Formula $\bar{x} = \frac{\sum (Px)}{\sum (P)}$. § 116-120.

Centre of gravity, Chapter IX to § 135. Trapezoid, alternative proof for § 136. Results only for pyramid and cone

§ 137-140. § 141-3. Formula $\bar{x} = \frac{\sum (mx)}{\sum (m)}$ § 144-6, compared with § 114-5.

Properties of the centre of gravity, Chapter X, omitting § 154-6. Alteration of centre of gravity of a body or system when a portion is transferred to another position.

The lever and balances, Chapters XI, XII; omitting analytical proof of the requisites of a balance; § 173.

Machines; Chapter XIII; with a simpler view of a train of wheels, § 187, omitting all considerations of the size of the teeth. Machines in combination; product of their mechanical advantages.

Pulleys; Chapter XIV; omitting weights of pulleys, 202-6, and second case of Spanish Barton given erroneously in § 207.

Inclined Plane; Chapter XV.

The Screw; Chapter XVI.

Compound Machines; Chapter XVII; proved by the principle of Virtual Velocities.

Virtual Velocities; definition and statement of principle;

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