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The exponential notation can also be used for powers of other bases where the index is complicated ; for example, the notation

$$\exp_a \frac{x^2}{4c^2t} \quad \text{for} \quad a^{x^2/4c^2t}$$

has been legitimised by previous use.

8. It is quite useless to recommend the substitution of dashes for dots in the fluxional notation for velocities and accelerations, because dashes are so often used for other purposes. For example, θ'' might mean an angle of θ seconds. The only rational plan of avoiding the printer's difficulties is to place the superior dots *after* the letters instead of over them ; thus $x'y'' - y'x''$ is all that is necessary.

9. The circular issued by the London Mathematical Society contains a specimen of printing showing all the leads and spaces used in setting up a piece of work involving mathematical formulae. As a matter of fact, however, this specimen is highly misleading, because the letterpress is "leaded," the lines of printing being spaced out by strips of lead inserted between them. Consequently, very few of the black lines and marks represent spacings introduced by the use of mathematical formulae. To make things clear, the example given should either have been printed in "solid" type (*i.e.* without spacing out the lines of letterpress), or the additional leads introduced for this purpose should have been left blank instead of being printed black. It is quite impossible to form a good idea of the difficulties encountered by the printer in setting up formulae from such an example. G. H. BRYAN.

MATHEMATICAL NOTE.

462. [L¹. 14. a.] The square of the major axis of a conic inscribed in a triangle is equal to the sum of the squares of the radii of the director circles of the inscribed conics whose centres are the foci of the original conic.

Take the triangle as triangle of reference, and let $(x, y, z), (x', y', z')$ be the areal coordinates of the foci. Let λ and μ be the semi-axes of the conic, and ρ, ρ' the radii of the director circles.

Then $\mu^2 = aa' = \beta\beta' = \gamma\gamma'$ (trilinear coordinates).

The square of the distance between the foci

$$= 4(\lambda^2 - \mu^2) = \Sigma bc \cos A (x - x')^2.$$

The middle term of the second expression reduces to $-4\mu^2$.

$$\therefore 4\lambda^2 = \Sigma bc \cos A (x^2 + x'^2).$$

Now, if H is the orthocentre and P the point (x, y, z) ,

$$\begin{aligned} PH^2 &= \Sigma bc \cos A (\cot B \cot C - x)^2 \\ &= -4R^2 \cos A \cos B \cos C + \Sigma bc \cos A \cdot x^2, \end{aligned}$$

so that $\Sigma bc \cos A \cdot x^2$ is the square of the radius (ρ) of the director circle of the inscribed conic, centre P , for this circle and the self polar circle of the triangle cut orthogonally.

Hence finally,

$$4\lambda^2 = \rho^2 + \rho'^2. \quad \text{Q.E.D.} \quad \text{N. M. GIBBINS.}$$