Review
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Differential- und Integralrechnung. Vol. I. Differentialrechnung. By. W. F. Meyer. Pp. xviii., 395. 9m. (Göschen, Leipzig.) Vol. X. Sammlung Schubert.

This interesting volume is well worthy the careful perusal of teachers of the elements of the Calculus. It is especially remarkable for the prominence given at an early stage to the theory of errors. It is not until after some 70 pages of introductory matter that the author approaches the differential coefficient, the first chapter being devoted entirely to the fundamental conceptions. He begins with a theorem on the limits of a^n and a^m for $n=\infty$, applying them to the summation of a G.P. He proceeds at once to use these results in determining the areas of plane curves and the volumes of solids of revolution. In the same way other limits, such as $\frac{\sin\theta}{\theta}$, $\frac{\sin\theta}{\Pi\cos\frac{\theta}{2^n}}$, lead us to the tangents to conics. A section on the Binomial Theorem is followed by the determination of the equation of the tangents to a parabola of the m^{th} order and the elementary notions of integral functions. The second part is quite a monograph in itself on the development of series. Rolle's theorem and its applications, Taylor's and Maclaurin's Theorem, are treated at length; and the final sections form an adequate discussion on the convergence and divergence of series and of infinite products. The second volume will contain the applications of the differential calculus to curves and surfaces, and also a series of historical notes. To it we look forward with considerable interest. We can heartily commend this attractive little volume to the attention of those who are not satisfied with the ordinary introductions to elementary analysis.

PROBLEMS.

460. [R. 2. b. γ.] Find the centre of gravity of the part cut from a solid sphere by two diametral planes inclined at angle 2α to each other. ANON.

461. [M[1]. 3. b.] MM' is a chord of a circle, centre O, parallel to a fixed diameter AB; MP is perpendicular to OM'. Find the areas of the locus of P and of the envelope of the line MP. What do they become when we replace the circle and its diameter by an ellipse and its major axis?

E. N. BARISIEN.

462. [K. 12. b. α.] Describe three circles, mutually tangent, to pass through three given points and touch a circle including the three points. A. B.

463. [L[1]. 17. e.] Shew that the equation to a circumconic of the triangle ABC can be written in the form

$$\frac{a}{p\alpha}+\frac{b}{q\beta}+\frac{c}{r\gamma}=0,$$

where p, q, r are the lengths of the focal chords parallel to BC, CA, AB.

J. J. MILNE.

464. [K. 10. e.] A, B are two fixed points, P a variable point, on a circle; find the locus of the intersections of BP with the bisectors of the angle BAP.

V. RETALI.

465. [L[1]. 6. c.] CP, CD are conjugate radii of an ellipse; PU, DV the chords of intersection of the ellipse with the circles of curvature at P, D; shew that CU, CV are conjugate. C. F. SANDBERG.

466. [K. 20. e.] In a triangle which has $\Sigma\cot A < 2$, shew that the least angle $> \cot^{-1}\frac{4}{3}$ and the greatest $< 90°$. If $\Sigma\cot A > 2$, what is the greatest value of the least angle and the least value of the greatest? C. E. YOUNGMAN.

467. [L[1]. 3. d.] Two tangents to a rectangular hyperbola meet on a fixed parabola having one asymptote of the hyperbola for axis and the other for the tangent at its vertex. Find the envelope of their chord of contact.

Durham, 1902.