

After considering the graphs of some elementary functions, the idea of limit and limiting value of a function is introduced and a continuous function defined by the relation, $\lim_{x \rightarrow a} f(x) = f(a)$. In the theorems on limits, in preparation for derivative, the limit of $\frac{\sin \theta}{\theta}$ and of the series for e are taken up.

No rigorous consideration of the limit of $\left[1 + \frac{1}{z}\right]^z$ is given, but the quantity is calculated for ten values of z and the graph constructed as illustration of the fact that the limit is the previously defined quantity e . Exercises follow on the limiting values of some elementary functions.

Chapter II. gives a clear conception of derivative, the general definition being given after the consideration by text and examples of increment and increment quotient, and the special cases of velocity and slope of the tangent of a curve. General rules, the derivatives of the elementary functions and numerous examples follow.

Chapter III. takes up tangent and normal, maxima and minima, expansion of functions and differentials. Maxima and minima are treated very clearly. The theorem of the mean is stated, the proof being geometric. As a more general law of the same nature Taylor's expansion with remainder is given, but without proof. Differential of $f(x)$ is defined as the first term in the expansion of $f(x + \Delta x) - f(x)$. In the exercises the meaning of differential and infinitesimal of higher order is brought out by examples of area and volume.

Chapter IV. takes up the definition of integral, integrals of the elementary forms, definite integrals and limit of a sum. Chapter V. is devoted to functions of two or more variables, partial derivative, total differential and total derivative.

The press work on the book is good and the page — very different from the average English text — looks interesting. The book should meet with success, for by its aid the "short course" may become really worth while. MAX MASON.

Geometrische Transformationen. I Teil: Die projektiven Transformationen nebst ihren Anwendungen. Von DR. KARL DOEHLEMANN. Leipzig, Göschen, 1902. vii + 322 pp.

THE theory of transformations has come to be of fundamental importance in geometry and yet the number of books devoted