#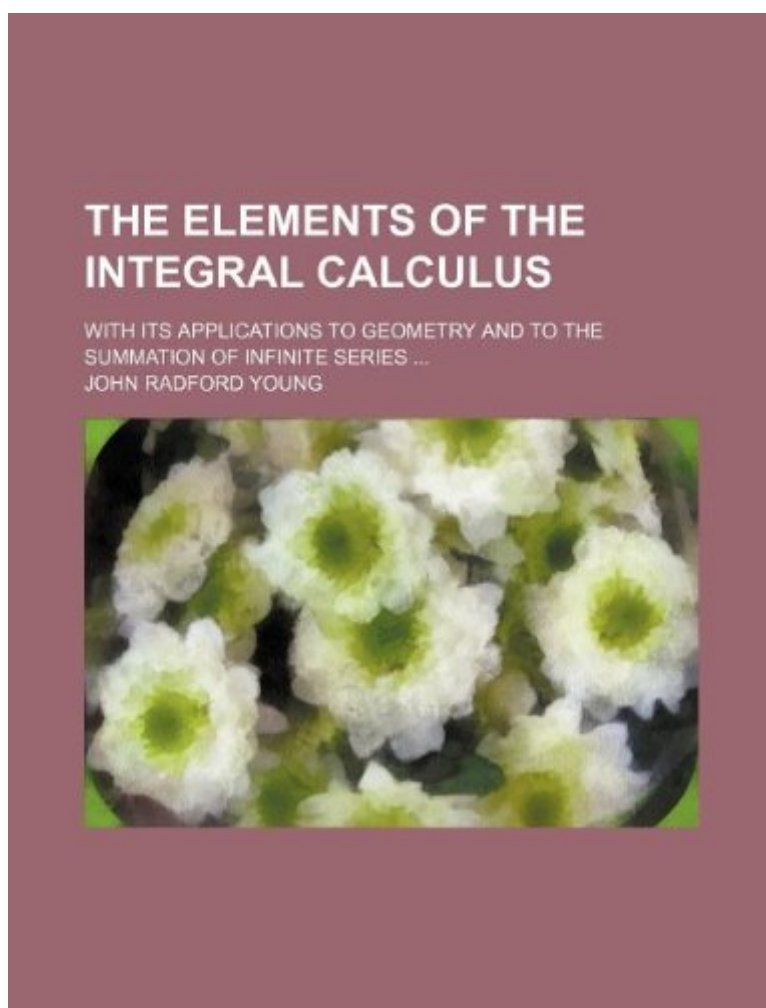 The elements of the integral calculus; with its applications to geometry and to the summation of infinite series ... PDF

The elements of the integral calculus; with its applications to geometry and to the summation of infinite series ... by John Radford Young ISBN 1130452638
This historic book may have numerous typos and missing text. Purchasers can download a free scanned copy of the original book (without typos) from the publisher. Not indexed. Not illustrated. 1831 Excerpt: ...have for the area of tha ttouching at M the expression I dz3 d7' the quantity under the radical heing a function of x and y we may represent it hy f (x, y), and to find the expression for the other parallelogram or that touching at C, we shall merely have to change in this x into x + h and y into y-j-k, multiplying the result as before by hk. Now /. +,, + = /.„+ gA + rf-+ c. consequently, the general expression for the ratio of the two parallelograms in space is which when h and k

become 0 reduces to unity; hence in the limit the ratio of the intermediate surface MC to either of these parallelograms is unity, so that then (PS (PS _i_ _ dx dy dxdy becomes = I dx dy' T dxdy' therefore As an illustrative example let us take as before a spherical surface. From its equation $x2 + y' + z2 = ri$, we get by differentiating dz x dz y dx i ' dy 5' and these values substituted in the foregoing expression under the radical reduces it to-f--x Vr'--y' this taken as before between the limits P and M, (see fig. p. 154,) or., TTV from i = u to x = vrz--y' is--., which is the quadrantal vertical arc subtended by PM; and multiplying by dy, and integrating again, have finally S = Ty, which from y--0 to y = r becomes for a quarter of the hemisphere 7H'2--' and therefore the surface of the whole sphere is 47n-2. CHAPTER III. MISCELLANEOUS INTEGRATIONS. (76.) The present may be considered as a supplementary chapter to what has already been said on the integration of functions of one variable, and in which it is intended to exhibit a few examples of the transformations to be effected in order to bring certain differential expressions to integrable forms. Multiplying both numerator and denominator of the function by the numerator it becomes (2a-f-x) dx adx + xdx adx / 2ax + x2 ...

## The elements of the integral calculus; with its applications to geometry and to the summation of infinite series ... Review

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