

$$\text{Let, } I = \int \frac{1 + x^{1/4}}{1 + x^{1/2}} dx \quad \text{and, } x = z^4$$

$$\text{So, } dx = 4z^3 dz$$

Now,

$$I = \int \frac{(1 + z)4z^3 dz}{1 + z^2} = 4 \int \frac{z^4 + z^3}{1 + z^2} dz$$

$$= 4 \int \frac{z^2(z^2 + 1) - (z^2 + 1) + z(z^2 + 1) - z - 1}{1 + z^2} dz$$

$$= 4 \left\{ \int (z^2 - 1 + z) dz - \int \frac{z dz}{z^2 + 1} - \int \frac{dz}{z^2 + 1} \right\}$$

$$= 4 \left\{ \frac{z^3}{3} - z + \frac{z^2}{2} - \frac{1}{2} \ln(z^2 + 1) - \tan^{-1} z \right\} + c$$

$$= 4 \left\{ \frac{x^{3/4}}{3} - x^{1/4} + \frac{x^{1/2}}{2} - \frac{1}{2} \ln(x^{1/2} + 1) \right.$$

$$\left. - \tan^{-1} x^{1/4} \right\} + c$$

$$[z = x^{(1/4)}]$$

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*A Problems Based Course in Advanced Calculus* John M. Erdman, 2018-07-09 This textbook is suitable for a course in advanced calculus that promotes active learning through problem solving It can be used as a base for a Moore method or inquiry based class or as a guide in a traditional classroom setting where lectures are organized around the presentation of problems and solutions This book is appropriate for any student who has taken or is concurrently taking an introductory course in calculus The book includes sixteen appendices that review some indispensable prerequisites on techniques of proof writing with special attention to the notation used the course

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*The American Mathematical Monthly*, 1921

*Advanced Calculus for Applications* Francis Begnaud Hildebrand, 1976 The text provides advanced

undergraduates with the necessary background in advanced calculus topics providing the foundation for partial differential equations and analysis Readers of this text should be well prepared to study from graduate level texts and publications of similar level

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Solutions to Problems in Franklin's Treatise on Advanced Calculus Robert B. Davis, 1946

Catalogue Kansas State Agricultural College, Kansas State College of Agriculture and Applied Science, Kansas State University, 1922

*Advanced Calculus* Robert Creighton Buck, Ellen F. Buck, 1968

The Advanced Part of A Treatise on the Dynamics of a System of Rigid Bodies Edward John Routh, 1884

**The Thermodynamics of Electrical Phenomena in Metals, and A Condensed Collection of Thermodynamic Formulas** Percy Williams Bridgman, 1961

*The Annual Catalogue of Purdue University, Lafayette, Indiana ... with Announcements for ...* Purdue University, 1922

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