

Solving Time Minimizing Transportation Problem by Zero Point Method

¹Gaurav Sharma, ²S. H. Abbas, ³Vijay Kumar Gupta

1. Deptt. of mathematics, IES institute of technology and Management, Bhopal(M.P.)

2. Deptt. of mathematics, Saifia Science college Bhopal(M.P.)

3. Deptt. of mathematics, UIT, RGPV Bhopal(M.P.)

ABSTRACT - In this paper we are study on Time Minimizing Transportation Problem for Albert David Company Mandideep. The object of this problem is minimizing the transportation time of goods which supply from one source to another source. In this paper we are using zero point method [1,2] to solving time minimizing transportation problem and compare the obtained results with the regular methods, which is solve by Tora Software to get feasible solution and we find that zero point method is best from another method.

Keywords - Feasible solution, Optimal solution, Tora Software, Time Minimizing Transportation Problem

I. INTRODUCTION

The time minimizing transportation problem is a special case of a transportation problem in which a time associated with each shipping route. Rather than minimizing cost, the objective is to minimize the maximum time to transport all supply to the destinations. In a time minimizing transportation problem, the time of the transporting items from origins to destinations is minimized, satisfying certain conditions in respect of availabilities at sources and requirements.

The problem of minimizing the total transportation has been studied since long and is well known. In a time transporting goods is minimized to satisfy certain condition in respect of availabilities at sources and requirement at destinations. The basic difference between cost minimizing and time minimizing transportation problem is that the cost of transportation change with variations in the quantity but the time involved remains unchanged and irrespective of the quantities. The time minimizing transportation problem has been studied by Hammer[3], Garfinkel and Rao[4], Swarup[5], Bhatia, Swarup and Puri[6], Sharma and Swarup[7], Seshan and Tikkar[8]. Most of the models developed for solving the transportation problem are with the assumption that the supply, demand and the cost per unit values are exactly known. But real world applications, the supply, the demand and the cost per unit of quantities are generally not specified precisely i.e. the parameter are not complete. But even with incomplete information, the model user is normally able to give a realistic interval for the parameters.

Zero point method used by P Pandian and G Natrajan [1,2] to finding the optimal solution and fuzzy optimal solution to reduced transportation cost of transportation problem and fuzzy transportation problem respectively. In this paper we are using zero point method to solve time minimizing transportation problem to reduced transportation time for Albert David Company which is situated in Mandideep. Here our object is comparing the zero point method with regular method [9] of solving time minimizing transportation and we are using different -2 method to get feasible solution which is solve by Tora software.

II. MATHEMATICAL TIME MINIMIZING TRANSPORTATION PROBLEM

In a time transportation problem, the time of transporting goods from m origins to n destinations is minimized, satisfying certain condition in respect of availability at sources and requirements at the destinations.

Thus the time minimizing transportation problem is:

Minimize $Z = [\text{Max}_{(i,j)} t_{ij} \cdot x_{ij} > 0]$

Subject to $\sum_{j=1}^n x_{ij} = a_i, \quad i = 1, 2, 3, \dots, m$

$\sum_{i=1}^m x_{ij} = b_j, \quad j = 1, 2, 3, \dots, n$

$x_{ij} \geq 0$

Here t_{ij} is the time of transporting goods from the i th origin, whose availability is a_i , to the j th destination, where the requirement is b_j . For any given feasible solution, $X = [x_{ij}]$ satisfying (1), the time of transportation is the maximum of t_{ij} among the cells in which there are positive allocations, i.e., corresponding to the solution X , the time of transportation is

$$[\text{Max}_{(i,j)} t_{ij} \cdot x_{ij} > 0]$$

Improved Zero Point Method Izpm For The Transportation

Rosina Ehmann



Improved Zero Point Method Izpm For The Transportation:

Embark on a breathtaking journey through nature and adventure with Crafted by is mesmerizing ebook, **Improved Zero Point Method Izpm For The Transportation** . This immersive experience, available for download in a PDF format (Download in PDF: *), transports you to the heart of natural marvels and thrilling escapades. Download now and let the adventure begin!

https://py.bijouxmedusa.com/About/virtual-library/Documents/The_Properties_Of_Petroleum_Fluids_2nd.pdf

Table of Contents Improved Zero Point Method Izpm For The Transportation

1. Understanding the eBook Improved Zero Point Method Izpm For The Transportation
 - The Rise of Digital Reading Improved Zero Point Method Izpm For The Transportation
 - Advantages of eBooks Over Traditional Books
2. Identifying Improved Zero Point Method Izpm For The Transportation
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Improved Zero Point Method Izpm For The Transportation
 - User-Friendly Interface
4. Exploring eBook Recommendations from Improved Zero Point Method Izpm For The Transportation
 - Personalized Recommendations
 - Improved Zero Point Method Izpm For The Transportation User Reviews and Ratings
 - Improved Zero Point Method Izpm For The Transportation and Bestseller Lists
5. Accessing Improved Zero Point Method Izpm For The Transportation Free and Paid eBooks
 - Improved Zero Point Method Izpm For The Transportation Public Domain eBooks
 - Improved Zero Point Method Izpm For The Transportation eBook Subscription Services
 - Improved Zero Point Method Izpm For The Transportation Budget-Friendly Options

6. Navigating Improved Zero Point Method Izpm For The Transportation eBook Formats
 - ePub, PDF, MOBI, and More
 - Improved Zero Point Method Izpm For The Transportation Compatibility with Devices
 - Improved Zero Point Method Izpm For The Transportation Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Improved Zero Point Method Izpm For The Transportation
 - Highlighting and Note-Taking Improved Zero Point Method Izpm For The Transportation
 - Interactive Elements Improved Zero Point Method Izpm For The Transportation
8. Staying Engaged with Improved Zero Point Method Izpm For The Transportation
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Improved Zero Point Method Izpm For The Transportation
9. Balancing eBooks and Physical Books Improved Zero Point Method Izpm For The Transportation
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Improved Zero Point Method Izpm For The Transportation
10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Improved Zero Point Method Izpm For The Transportation
 - Setting Reading Goals Improved Zero Point Method Izpm For The Transportation
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Improved Zero Point Method Izpm For The Transportation
 - Fact-Checking eBook Content of Improved Zero Point Method Izpm For The Transportation
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements

- Interactive and Gamified eBooks

Improved Zero Point Method Izpm For The Transportation Introduction

In the digital age, access to information has become easier than ever before. The ability to download Improved Zero Point Method Izpm For The Transportation has revolutionized the way we consume written content. Whether you are a student looking for course material, an avid reader searching for your next favorite book, or a professional seeking research papers, the option to download Improved Zero Point Method Izpm For The Transportation has opened up a world of possibilities. Downloading Improved Zero Point Method Izpm For The Transportation provides numerous advantages over physical copies of books and documents. Firstly, it is incredibly convenient. Gone are the days of carrying around heavy textbooks or bulky folders filled with papers. With the click of a button, you can gain immediate access to valuable resources on any device. This convenience allows for efficient studying, researching, and reading on the go. Moreover, the cost-effective nature of downloading Improved Zero Point Method Izpm For The Transportation has democratized knowledge. Traditional books and academic journals can be expensive, making it difficult for individuals with limited financial resources to access information. By offering free PDF downloads, publishers and authors are enabling a wider audience to benefit from their work. This inclusivity promotes equal opportunities for learning and personal growth. There are numerous websites and platforms where individuals can download Improved Zero Point Method Izpm For The Transportation. These websites range from academic databases offering research papers and journals to online libraries with an expansive collection of books from various genres. Many authors and publishers also upload their work to specific websites, granting readers access to their content without any charge. These platforms not only provide access to existing literature but also serve as an excellent platform for undiscovered authors to share their work with the world. However, it is essential to be cautious while downloading Improved Zero Point Method Izpm For The Transportation. Some websites may offer pirated or illegally obtained copies of copyrighted material. Engaging in such activities not only violates copyright laws but also undermines the efforts of authors, publishers, and researchers. To ensure ethical downloading, it is advisable to utilize reputable websites that prioritize the legal distribution of content. When downloading Improved Zero Point Method Izpm For The Transportation, users should also consider the potential security risks associated with online platforms. Malicious actors may exploit vulnerabilities in unprotected websites to distribute malware or steal personal information. To protect themselves, individuals should ensure their devices have reliable antivirus software installed and validate the legitimacy of the websites they are downloading from. In conclusion, the ability to download Improved Zero Point Method Izpm For The Transportation has transformed the way we access information. With the convenience, cost-effectiveness, and accessibility it offers, free PDF downloads have become a popular choice for students, researchers, and book lovers worldwide. However, it is crucial to

engage in ethical downloading practices and prioritize personal security when utilizing online platforms. By doing so, individuals can make the most of the vast array of free PDF resources available and embark on a journey of continuous learning and intellectual growth.

FAQs About Improved Zero Point Method Izpm For The Transportation Books

1. Where can I buy Improved Zero Point Method Izpm For The Transportation books? Bookstores: Physical bookstores like Barnes & Noble, Waterstones, and independent local stores. Online Retailers: Amazon, Book Depository, and various online bookstores offer a wide range of books in physical and digital formats.
2. What are the different book formats available? Hardcover: Sturdy and durable, usually more expensive. Paperback: Cheaper, lighter, and more portable than hardcovers. E-books: Digital books available for e-readers like Kindle or software like Apple Books, Kindle, and Google Play Books.
3. How do I choose a Improved Zero Point Method Izpm For The Transportation book to read? Genres: Consider the genre you enjoy (fiction, non-fiction, mystery, sci-fi, etc.). Recommendations: Ask friends, join book clubs, or explore online reviews and recommendations. Author: If you like a particular author, you might enjoy more of their work.
4. How do I take care of Improved Zero Point Method Izpm For The Transportation books? Storage: Keep them away from direct sunlight and in a dry environment. Handling: Avoid folding pages, use bookmarks, and handle them with clean hands. Cleaning: Gently dust the covers and pages occasionally.
5. Can I borrow books without buying them? Public Libraries: Local libraries offer a wide range of books for borrowing. Book Swaps: Community book exchanges or online platforms where people exchange books.
6. How can I track my reading progress or manage my book collection? Book Tracking Apps: Goodreads, LibraryThing, and Book Catalogue are popular apps for tracking your reading progress and managing book collections. Spreadsheets: You can create your own spreadsheet to track books read, ratings, and other details.
7. What are Improved Zero Point Method Izpm For The Transportation audiobooks, and where can I find them? Audiobooks: Audio recordings of books, perfect for listening while commuting or multitasking. Platforms: Audible, LibriVox, and Google Play Books offer a wide selection of audiobooks.
8. How do I support authors or the book industry? Buy Books: Purchase books from authors or independent bookstores. Reviews: Leave reviews on platforms like Goodreads or Amazon. Promotion: Share your favorite books on social media or recommend them to friends.

9. Are there book clubs or reading communities I can join? Local Clubs: Check for local book clubs in libraries or community centers. Online Communities: Platforms like Goodreads have virtual book clubs and discussion groups.
10. Can I read Improved Zero Point Method Izpm For The Transportation books for free? Public Domain Books: Many classic books are available for free as they're in the public domain. Free E-books: Some websites offer free e-books legally, like Project Gutenberg or Open Library.

Find Improved Zero Point Method Izpm For The Transportation :

the properties of petroleum fluids 2nd

~~the ultimate guide to the rider waite tarot~~

things to come a study in biblical eschatology j dwight pentecost

the tony rice guitar method vhs video

the nature and power of mathematics donald m davis

the sims 4 prima guide

thermodynamics an engineering approach 5th edition solution manual download

the witches of pendle oxford bookworms library stage 1

the senses considered as perceptual systems

thinking physics understandable practical reality lewis carroll epstein

the system of objects jean baudrillard

the ultimate guide to dropshipping learn to build a location independent successful business and become financially dropshipping dropshipping for to start dropshipping learn dropshipping

~~theory and practice student manual~~

the penguin dictionary of economics

the tyrant of the badlands 4

Improved Zero Point Method Izpm For The Transportation :

Portuguese For Dummies by Keller, Karen Portuguese for Dummies, of course! This fun, friendly guide helps you start speaking Brazilian Portuguese immediately! Whether you're a student, a traveler, or ... Portuguese For Dummies by Keller, Karen Portuguese for Dummies is a well-written beginner's text for the study of that language or at least the Brazilian version of that language. Karen Keller is ... Portuguese For Dummies Cheat Sheet Feb 22, 2022 — This article can be found

in the category: Portuguese . From the Book Brazilian Portuguese For Dummies. Brazilian Portuguese For Dummies Brazilian Portuguese For Dummies, 3rd Edition (1119894654) is your easy-to-follow guide to the language, for travel, school, or just fun! Portuguese Books Portuguese Phrases for Dummies is the perfect diving board for anyone looking to communicate and even become fluent in the language. As the fifth-most widely ... Portuguese Phrases For Dummies Want to improve your conversation skills with the Portuguese-speaking people in your life? Portuguese Phrases for Dummies is the perfect diving board for anyone ... Brazilian Portuguese for Dummies (Paperback) Aug 2, 2022 — Brazilian Portuguese For Dummies can help you achieve your goals of learning another language. Traveling to Brazil? Taking a class in school? Brazilian Portuguese For Dummies, 3rd Edition Language learning is easy with Dummies Brazilian Portuguese For Dummies can help you achieve your goals of learning another language. Traveling to Brazil? Portuguese For Dummies by Karen Keller, Paperback Portuguese For Dummies · Paperback · \$24.99. Portuguese for Dummies book by Karen Keller Buy a cheap copy of Portuguese for Dummies book by Karen Keller. Quick What's the most widely spoken language in South America? That's right, Portuguese And ... Standard Operating Procedure for Sales Optimize your sales success with our meticulously crafted Standard Operating Procedure (SOP) for Sales. Elevate your business processes with expert guidance ... 7 SOP Examples to Steal for Your Team Jul 13, 2023 — We share seven SOP examples across business units. Use these standard operating procedure examples to build your own SOPs. 8 Standard Operating Procedure (SOP) Examples Jul 23, 2023 — Example 5: Sales SOP for acquiring new clients ... Complete the phone conversation and send any interested clients' information to the sales ... Sales Department SOP Template The Sales Department SOP Template is a game-changer for any sales team. Here are ... Sales Rep," to provide visibility and better manage your sales pipeline. Template: SOP Sales Jan 19, 2023 — The Sales team compiles a customised offer / contract that must be approved by Management and the QMO. Approval must be documented. The offer / ... Sales Standard Operating Procedure- Best Practices and ... Apr 20, 2023 — Keep a clear, concise and simple language ... When it comes to writing Standard Operating Procedures (SOPs), it's important to keep a clear, ... 20 SOP Examples You Can Steal From Today May 18, 2022 — Step 2: A sales rep analyzes performance from the previous quarter's sales prospecting. Step 3: With the help of Sales Navigator, the sales ... How to Write the Best SOPs for Your Company Aug 19, 2021 — Standard Operating Procedures Format · Title: SOPs should always begin with a title that briefly but fully encapsulates the purpose of the ... Sales SOP (Standard Operating Procedure) Feb 25, 2016 — Part of my job is to sell the products that I have developed. "Sell me a pen. Medical Instrumentation Application and Design 4th Edition ... Apr 21, 2020 — Medical Instrumentation Application and Design 4th Edition Webster Solutions Manual Full Download: ... Medical Instrumentation 4th Edition Textbook Solutions Access Medical Instrumentation 4th Edition solutions now. Our solutions are written by Chegg experts so you can be assured of the highest quality! Solutions manual, Medical instrumentation : application ... Solutions manual, Medical instrumentation : application and design ; Authors: John G.

Webster, John W. Clark ; Edition: View all formats and editions ; Publisher: ... Medical instrumentation : application and design Solutions manual [for] : Medical instrumentation : application and design ; Author: John G. Webster ; Edition: 2nd ed View all formats and editions ; Publisher: ... MEDICAL INSTRUMENTATION Medical instrumentation: application and design / John G. Webster, editor ... A Solutions Manual containing complete solutions to all problems is available ... Medical Instrumentation Application and Design - 4th Edition Our resource for Medical Instrumentation Application and Design includes answers to chapter exercises, as well as detailed information to walk you through the ... Medical Instrumentation - John G. Webster Bibliographic information ; Title, Medical Instrumentation: Application and Design, Second Edition. Solutions manual ; Author, John G. Webster ; Contributor, John ... [Book] Medical Instrumentation Application and Design, 4th ... Medical Instrumentation Application and Design, 4th Edition Solutions Manual. Wiley [Pages Unknown]. DOI/PMID/ISBN: 9780471676003. URL. Upvote Solutions Manual, Medical Instrumentation - Webster Title, Solutions Manual, Medical Instrumentation: Application and Design ; Author, Webster ; Contributor, John William Clark ; Publisher, Houghton Mifflin, 1978. Medical Instrumentation Application and Design 4th Edition ... Medical Instrumentation Application and Design 4th Edition Webster Solutions Manual - Free download as PDF File (.pdf), Text File (.txt) or read online for ...