Sorting algorithms

selection sort	insertion sort	merge sort	Quicksort
8 , 5, 1 , 3, 7	8, 5, 1, 3, 7	8, 5, 1, 3, 7	8, 5, 1, 3, 7
1, 5 , 8, 3 , 7	8 , 5 , 1, 3, 7	8, 5, 1 3, 7	1, 8, 5, 3, 7
1, 3, 8 , 5 , 7	5 , 8 , 1 , 3, 7	8,5 1 3 7	1 , 3, 5 , 8 , 7
1, 3, 5, 8 , 7	1 , 5 , 8 , 3 , 7	8 5 1 3 7	1 , 3, 5 , 7, 8
1, 3, 5, 7, 8	1, 3, 5, 8, 7	5,8 1 3,7	
	1, 3, 5, 7, 8	1, 5, 8 3, 7	
		1, 3, 5, 7, 8	
= place = minim	um number		

= number to be sorted = sorted number(s)

⁼ current pivot == previously used pivot(s)
© Encyclopædia Britannica, Inc.

Sorting Out Fitting In English Edition

RC Schank

Sorting Out Fitting In English Edition:

Embark on a transformative journey with Explore the World with is captivating work, **Sorting Out Fitting In English Edition**. This enlightening ebook, available for download in a convenient PDF format, invites you to explore a world of boundless knowledge. Unleash your intellectual curiosity and discover the power of words as you dive into this riveting creation. Download now and elevate your reading experience to new heights.

http://www.frostbox.com/data/Resources/fetch.php/Volkswagen%20Touran%202003%20Service%20Manual%20Pl.pdf

Table of Contents Sorting Out Fitting In English Edition

- 1. Understanding the eBook Sorting Out Fitting In English Edition
 - The Rise of Digital Reading Sorting Out Fitting In English Edition
 - o Advantages of eBooks Over Traditional Books
- 2. Identifying Sorting Out Fitting In English Edition
 - 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 Sorting Out Fitting In English Edition
 - User-Friendly Interface
- 4. Exploring eBook Recommendations from Sorting Out Fitting In English Edition
 - Personalized Recommendations
 - $\circ\,$ Sorting Out Fitting In English Edition User Reviews and Ratings
 - Sorting Out Fitting In English Edition and Bestseller Lists
- 5. Accessing Sorting Out Fitting In English Edition Free and Paid eBooks
 - Sorting Out Fitting In English Edition Public Domain eBooks
 - Sorting Out Fitting In English Edition eBook Subscription Services
 - Sorting Out Fitting In English Edition Budget-Friendly Options

- 6. Navigating Sorting Out Fitting In English Edition eBook Formats
 - o ePub, PDF, MOBI, and More
 - Sorting Out Fitting In English Edition Compatibility with Devices
 - Sorting Out Fitting In English Edition Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Sorting Out Fitting In English Edition
 - Highlighting and Note-Taking Sorting Out Fitting In English Edition
 - Interactive Elements Sorting Out Fitting In English Edition
- 8. Staying Engaged with Sorting Out Fitting In English Edition
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Sorting Out Fitting In English Edition
- 9. Balancing eBooks and Physical Books Sorting Out Fitting In English Edition
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Sorting Out Fitting In English Edition
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Sorting Out Fitting In English Edition
 - Setting Reading Goals Sorting Out Fitting In English Edition
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Sorting Out Fitting In English Edition
 - Fact-Checking eBook Content of Sorting Out Fitting In English Edition
 - 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

Sorting Out Fitting In English Edition Introduction

In the digital age, access to information has become easier than ever before. The ability to download Sorting Out Fitting In English Edition 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 Sorting Out Fitting In English Edition has opened up a world of possibilities. Downloading Sorting Out Fitting In English Edition 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 Sorting Out Fitting In English Edition 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 Sorting Out Fitting In English Edition. 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 Sorting Out Fitting In English Edition. 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 Sorting Out Fitting In English Edition, 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 Sorting Out Fitting In English Edition 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 Sorting Out Fitting In English Edition Books

- 1. Where can I buy Sorting Out Fitting In English Edition 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 Sorting Out Fitting In English Edition 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 Sorting Out Fitting In English Edition 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 Sorting Out Fitting In English Edition 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 Sorting Out Fitting In English Edition books for free? Public Domain Books: Many classic books are available for free as theyre in the public domain. Free E-books: Some websites offer free e-books legally, like Project Gutenberg or Open Library.

Find Sorting Out Fitting In English Edition:

volkswagen touran 2003 service manual pl volkswagen manuale composition media golf 7 volkswagen jetta user manual vocabulary review chemistry answer key volkswagen golf car stereo wiring guide

vm r428 dohc service manual

volkswagen beetle 2004 manual

volkswagen polo service repair manual vogue the gown

<u>vizio vw32l hdtv20a manual</u> <u>voices in flight the royal naval air services during wwi</u> volkswagen r36 manual

vocabulary review evolution of populations voice command manual

volkswagen passat 2006 manual

Sorting Out Fitting In English Edition:

genesis 18 11 14 niv abraham and sarah were already very - Jun 12 2021

genesis 18 12 15 kjv therefore sarah laughed within herself - Oct 09 2023

web genesis 18 12 15 12 therefore sarah laughed within herself saying after i am waxed old shall i have pleasure my lord being old also 13 and the lord said unto abraham

genesis 18 11 15 nkjv now abraham and sarah biblia - Jul 26 2022

web 17 abraham laughed the jewish interpreters regard abraham s laugh as one of joy and sarah s genesis 18 12 as one of

unbelief we may however well doubt whether

late night on the gop debate the new york times - Dec 19 2021

web by sarah ferris 11 09 2023 05 00 am est link copied as president joe biden s party frets openly over his reelection bid house democrats are growing more furious with one

junior leader turned biden foe how dean phillips fell from - Aug 15 2021

genesis 18 12 commentaries sarah laughed to herself - Dec 31 2022

web when sarah laughed at the idea the lord revealed he knew she laughed to herself and he even knew her thoughts he revealed that he was the lord that nothing was too hard

what is the significance of sarah denying having - Feb 01 2023

web jun 6 2020 who me said sarah trying to stuff her fist between her gums bared wide in a fit of laughter why would i laugh a ninety year old woman childless since the day

genesis 18 12 kjv therefore sarah laughed within herself - Nov 29 2022

web genesis 18 14 earlier in genesis 18 the lord revealed to sarah that she would bear a son even in her old age but she knew that women of her age never had children so she

and sara laughed - Feb 18 2022

web nov 4 2023 the case before denver district judge sarah b wallace is unique because it featured a week long hearing with legal scholars police officers and members of

the strengths and weaknesses of legal attempts to disqualify trump - Oct 17 2021

web abraham and sarah were already very old and sarah was past the age of childbearing so sarah laughed to herself as she thought after i am worn out and my lord is old will i

god responds to sarah s laughter theology of work - Aug 27 2022

web nov 6 2019 god s response is to ask abraham why sarah laughed which she vehemently denies and the moment always troubled me how could sarah paragon of

kyle richards and morgan richards react to wayne s world - Jul 14 2021

genesis 18 12 so she laughed to herself saying after i - Sep 08 2023

web like sarah and hagar laughter and tears are inextricably linked to one another as anyone who has laughed and cried at the same time knows it is sometimes hard to distinguish

what can we learn from sarah s laughter in the bible - Aug 07 2023

web oct 11 2006 sarah laughed genesis 18 9 12 genesis 18 9 12 now abraham and sarah were old advanced in years the way of women had ceased to be with sarah so

sarah laughed sermon by ken harris genesis 18 12 14 - Jun 24 2022

web may 7 2022 contributed by michael stark on may 7 2022 message contributor based on 1 rating rate this sermon 3 002 views scripture genesis 18 9 15 denomination

genesis 17 17 abraham fell facedown then he laughed and said - Apr 22 2022

web 6 hours ago the third republican presidential debate took place on wednesday with five g o p hopefuls taking the stage in miami on thursday late night hosts weighed in on

genesis 18 12 14 nkjv therefore sarah laughed within herself - May 12 2021

why did sarah laugh shayna abramson the blogs - May 24 2022

web jan 31 2012 and sara laughed search this blog tuesday january 31 2012 ayelet it s really hard it s so hard to say anything that doesn t sound completely wrong or selfish

sara laughed facebook - Jan 20 2022

web nov 9 2023 3 episodes true cheating stories 2023 best of reddit nsfw cheating stories 2023 true cheating stories 2022 best of reddit stories 2022 i cheated on my

then sarah denied saying i laughed not for she was afraid and - Mar 02 2023

web 12 therefore sarah laughed within herself saying after i am waxed old shall i have pleasure my lord being old also 13 and the lord said unto abraham wherefore did

genesis 18 13 sarah laughs at the promise bible hub - Jun 05 2023

web sarah laughed within herself within the tent and behind the speaker yet to her surprise her internal feelings are known to him she finds there is one present who rises above the

sarah laughed sermon by michael stark genesis 18 9 15 - Mar 22 2022

web 6 hours ago judd apatow and sarah silverman got to talking about the 118 day effort during thursday s episode of the daily show laughed cried and then were like i

true cheating stories 2023 best of reddit nsfw cheating - $Sep\ 15\ 2021$

web 12 therefore sarah laughed within herself saying after i have grown old shall i have pleasure my lord being old also 13 and the lord said to abraham why did sarah

what does genesis 18 15 mean bibleref com - Sep 27 2022

web dec 14 2003 at the time appointed i will return unto thee according to the time of life and sarah shall have a son iv

purpose to motivate the hearers to trust god to

and sara laughed and laughed and laughed reform judaism - Jul 06 2023

web ostensibly sarah s laughter expresses astonishment and joy just like the laughter of avraham in the preceding chapter 17 when he is told after his circumcision and

jimmy kimmel more late night hosts weigh in on end of - Nov 17 2021

web nov 4 2023 kyle richards and morgan wade can find the humor in fans fascination about them amid speculation about the status of their bond the two stars similar outfits

and sarah laughed st pauls united church of christ - Oct 29 2022

web 11 now abraham and sarah were old advanced in age the way of women had ceased to be for sarah 12 so sarah laughed to herself saying after i am worn out and my

and sarah laughed the lookstein center - Apr 03 2023

web sarah laughed within herself within the tent and behind the speaker yet to her surprise her internal feelings are known to him she finds there is one present who rises above the

sarah laughed reformed bible studies devotionals at - May 04 2023

web 15 sarah was afraid so she lied and said i did not laugh but he said yes you did laugh i m bothered by the last verse why does the text recount that sarah denied that

top 24 resistance band exercises set for set - Apr 01 2023

web jan 2 2022 the resistance band exercises below target muscle groups legs glutes shoulders chest back arms and abs core and they are perfect for both men and women we also added a few total body resistance band exercises for those who prefer full body workouts and want to burn a lot of calories

the ultimate 8 week resistance band training program with pdf - Aug 05 2023

web jul 26 2022 we re proud to announce our ultimate 8 week resistance band training program that is designed to improve your resistance band skills promote muscular hypertrophy power and strength this workout routine is for all fitness levels and abilities

10 best resistance band home workouts chart download - Sep 06 2023

web mar 27 2020 do your resistance band full body workout from home using these 10 best exercises along with our free resistance band exercise chart download working out at home is more important than ever right now especially

free printable resistance band exercise chart pdf w pictures - Sep 25 2022

web enjoy this free downloadable and printable resistance band exercise chart pdf this is more than just a table or chart printout that you can download and print it s a fully illustrated guide with pictures and explanations of each and every

exercise they are easy resistance band exercises in a pdf you can use when you are traveling or on the road resistance band and body weight exercises in - Jun 22 2022

web resistance band and body weight exercises in small spaces lower body upper body bodyweight core office stretches stretching is a safe and useful activity for healthy adults that can help improve overall flexibility posture coordination balance and postural awareness

how to choose the right resistance bands for you verywell fit - Jul 24 2022

web mar 20 2023 figure 8 bands although these bands can be used similarly to loop bands the figure 8 design comes with soft handle grips making it easier to perform certain exercises ankle resistance band designed to loop around each ankle this band adds resistance to exercises like side steps and leg lifts power resistance bands these

list of resistance band exercises by muscle group the fitness - Nov 27 2022

web feb 17 2022 level beginner resistance band bent over rowing level beginner resistance band lat pulldown level beginner resistance band single arm rowing level beginner banded face pull level intermediate seated rowing with resistance band level beginner standing overhead pull apart level beginner banded superman

56 at home resistance band exercises and workouts for 2023 men s health - Jan 30 2023

web aug 17 2022 56 resistance band moves you can do at home no dumbbells no problem build muscle size and strength with these workouts by ebenezer samuel c s c s and brett williams nasm published aug core balance resistance bands exercise guide pdf - Oct 27 2022

web get the best out your resistance bands with this pdf exercise guide from core balance printable manual with beginner exercises for a big full body workout created date

resistance band workout exercises and tips verywell fit - Dec 29 2022

web oct 24 2022 using resistance bands can be an excellent way to keep your muscles activated between heavier weight lifting sessions improve recovery or provide a stimulus for warming up before strength training or cardio read on to learn how to incorporate lower body resistance band workouts into your routine

a 30 day resistance band workout plan for beginners - Jun 03 2023

web dec 31 2021 30 day walking and full body resistance band workout you can use resistance bands to target every major muscle group and that s exactly what we re going to do i ve devised this 30 day

free printable resistance band exercises chart pdf justfit - Oct 07 2023

web resistance band is very beginner friendly it can be used to target specific muscle groups or to perform full body workouts here you can learn 8 basic workouts using resistance bands and get free printable resistance band exercises chart pdf try for free

learn 100s of the best resistance band exercises bodylastics - Feb 16 2022

web the best resistance bands exercises you can do amazing exercises with resistance bands not only can you do the best exercises from the gym but many exercises that could not be created with any other type of resistance click on an image below to see the exercises for that style of band

best resistance bands exercises for beginners webmd - Aug 25 2022

web 4 min read resistance bands are an easy way to introduce yourself to strength training they are versatile and start at a very low resistance helping you build your strength whether you are

12 week resistance band training program with free pdf - May 02 2023

web feb 24 2022 30 75 kg i ve selected a few resistance bands you can check them out 12 week resistance band training program week 1 4 full body resistance band workout week 5 8 upper lower split week 9 12 push pull legs exercises week 1 4 full body resistance band workout smonday workout tuesday workout wednesday rest

resistance band workout the 10 best band exercises nerd fitness - Jul 04 2023

web jan 13 2022 the nerd fitness resistance band workout 12 band squats 10 overhead presses 12 band deadlifts 10 arm rows per side 10 high to low band rows 10 arm chest presses per side 10 pallof presses per side this beginner resistance band workout is what s called a circuit you can learn all about circuit training here

free printable full body resistance band workout pdf w - May 22 2022

web enjoy this free downloadable and printable full body resistance band exercise chart pdf this is more than just a table or chart printout that you can download and print it s a fully illustrated guide with pictures and explanations of each and the 17 best resistance band exercises and how to get started livestrong - Mar 20 2022

web jan 21 2022 with these 17 best resistance band exercises you re set for awesome arm leg and total body band workouts here s everything you need to know to get started eat better

33 resistance band exercises legs arms abs and more greatist - Feb 28 2023

web jan 31 2022 1 front squat your butt both sides of your thigh and hamstrings are going to thank you for this one after they stop burning front squats can also provide a strength boost to your groin hip

resistance band exercises bhf british heart foundation - Apr 20 2022

web resistance band exercises exercising with a resistance band can help improve your strength and flexibility see suggested exercises and watch our exclusive video resistance bands are large elastic bands that you can use to

eighty days yellow vina jackson google books - Dec 07 2022

web eighty days yellow vina jackson caught in a frustrating relationship with a man who can t accept her for who she is passionate flame haired violinist summer zahova finds

yellow days wikipedia - Dec 27 2021

web switch to new thesaurus adj 1 eight day lasting for eight days long primarily temporal sense being or indicating a relatively great or greater than average duration or passage

eighty days yellow the first novel in the gripping and - Jul 14 2023

web buy eighty days yellow the first novel in the gripping and unforgettablely romantic series to read out in the sun this summer by jackson vina isbn 9781409127741 from

eighty days yellow jackson vina free download borrow and - $Jun\ 01\ 2022$

web eighty days yellow the eighty days trilogy book one vina jackson contents 1 a girl and her violin 2 a man and his desires 3 a girl and her arse 4 a man and his

eighty days yellow the first novel in the gripping and - Oct 05 2022

web eighty days yellow vina jackson amazon com tr Çerez tercihlerinizi seçin alışveriş deneyiminizi geliştirmek hizmetlerimizi sunmak müşterilerin hizmetlerimizi nasıl

eighty days yellow paperback 1 jan 2012 amazon co uk - Apr 30 2022

web exhilarating seductive and tantalizingly bold eighty days yellow will leave you breathless for more now available the next two books in the eighty days trilogy eighty days

eighty days yellow book 2012 worldcat org - Nov 06 2022

web jul 19 2012 eighty days yellow the first novel in the gripping and unforgettablely romantic series to read out in the sun this summer eighty days 1 ebook jackson

eighty days yellow by vina jackson books on google play - Jan 08 2023

web can a relationship born of such all consuming passion ever really survive exhilarating seductive and tantalizingly bold eighty days yellow will leave you breathless for

eighty days series by vina jackson goodreads - Feb 09 2023

web eighty days yellow ebook written by vina jackson read this book using google play books app on your pc android ios devices download for offline reading highlight

eighty days yellow on apple books - Aug 03 2022

web eighty days yellow by jackson vina publication date 2012 topics summer fictitious character jackson fiction dominik fictitious character jackson fiction

eighty days yellow eighty days 1 by vina jackson goodreads - Aug 15 2023

web eighty days yellow is an erotically dark and at times frustrating tale of domination and submission a native of new zealand summer is now living in london and aspiring to play the beautiful music she creates with her treasured violin

eighty days yellow digital library of illinois overdrive - Feb 26 2022

web yellow days la mentira se te olvida known in english as yellow days is a bolero written by Álvaro carrillo around 1965 1 alan bernstein wrote the song s lyrics in

eight day definition of eight day by the free dictionary - Oct 25 2021

vina jackson author of eighty days yellow - Jul 02 2022

web buy eighty days yellow by vina jackson from amazon s fiction books store everyday low prices on a huge range of new releases and classic fiction eighty days yellow

eighty days book series in order - Jan 28 2022

web in the gregorian calendar a year has on average 365 2425 days it is based on the amount of time it takes for the earth to rotate the sun common abbreviations y yr days a day

eighty days yellow by vina jackson ebook scribd - Mar 30 2022

web eighty days yellow is the 1st of the eighty days series it opens up with introduction of summer zahova who is the protagonist she originally hails from new zealand but

eighty days yellow eighty days tril jackson vina - Mar 10 2023

web eighty days yellow by vina jackson 2 90 5 573 ratings 636 reviews published 2012 56 editions in the manner of fifty shades of grey vina jac want to read rate it

eighty days yellow jackson vina free download borrow and - Jun 13 2023

web 325 pages 22 cm caught in a frustrating relationship with a man who can t accept her for who she is passionate flame haired violinist summer zahova finds release in her music

books by vina jackson author of eighty days yellow goodreads - Apr 11 2023

web eighty days yellow eighty days tril jackson vina amazon com tr kitap Çerez tercihlerinizi seçin Çerez bildirimimizde ayrıntılı şekilde açıklandığı üzere alışveriş

eighty days yellow vina jackson amazon com tr - Sep 04 2022

web exhilarating seductive and tantalizingly bold eighty days yellow will leave you breathless for more now available the next two books in the eighty days trilogy eighty days

eighty days yellow the eighty days series book 1 - May 12 2023

web vina jackson has 35 books on goodreads with 22421 ratings vina jackson s most popular book is eighty days yellow eighty days 1

how many days in 80 years convertoctopus - Sep 23 2021

 $convert~8~years~to~days~calculateme~com~\cdot~Nov~25~2021$

web to convert 80 years into days we have to multiply 80 by the conversion factor in order to get the time amount from years to days we can also form a simple proportion to calculate