what does extraneous mean in algebra 2

what does extraneous mean in algebra 2 is a question that often arises among students grappling with the complexities of algebraic equations. The term "extraneous" refers to solutions that emerge during the process of solving an equation but do not satisfy the original equation itself. This concept is particularly significant in Algebra 2, where students encounter a variety of equations, including rational expressions, radical equations, and quadratic equations. Understanding extraneous solutions is crucial for accurate problem-solving and enhances mathematical comprehension. This article will explore the definition of extraneous solutions, their identification, and strategies to avoid them. We will also delve into examples that illustrate how extraneous solutions manifest in different contexts within Algebra 2.

- Understanding Extraneous Solutions
- Examples of Extraneous Solutions
- How to Identify Extraneous Solutions
- Strategies to Avoid Extraneous Solutions
- Conclusion

Understanding Extraneous Solutions

Extraneous solutions appear when solving equations, particularly when manipulating expressions or applying certain algebraic operations. In Algebra 2, students often encounter extraneous solutions in two main scenarios: when dealing with radical equations and when working with rational expressions.

When students isolate a variable or square both sides of an equation, they may introduce solutions that do not hold true when substituted back into the original equation. This happens because certain algebraic manipulations can change the nature of the solutions. For example, squaring both sides of an equation can lead to additional solutions that do not satisfy the original conditions.

In essence, extraneous solutions are a reminder of the importance of verification in mathematics. After finding a solution, it is essential to substitute it back into the original equation to ensure it is valid. Failure to do so can lead to incorrect conclusions and misunderstandings.

Examples of Extraneous Solutions

To better grasp the concept of extraneous solutions, consider the following examples commonly encountered in Algebra 2.

Example 1: Radical Equations

Consider the equation:

```
\sqrt{(x + 3)} = x - 3.

To solve this equation, we first square both sides: x + 3 = (x - 3)^2.

Expanding the right side gives: x + 3 = x^2 - 6x + 9.

Rearranging leads to: 0 = x^2 - 7x + 6.

Factoring yields: 0 = (x - 1)(x - 6).

Thus, the solutions are x = 1 and x = 6. However, we must check each solution in the original equation:

- For x = 1:
\sqrt{(1 + 3)} = 1 - 3 \rightarrow 2 = -2 (not valid)
- For x = 6:
\sqrt{(6 + 3)} = 6 - 3 \rightarrow 3 = 3 (valid)
```

Example 2: Rational Expressions

Thus, x = 1 is an extraneous solution.

```
Consider the equation: 1/(x-2)=3.

To solve this equation, we multiply both sides by (x-2): 1=3(x-2).

Rearranging gives: 1=3x-6 \rightarrow 3x=7 \rightarrow x=7/3.

To verify, substitute x back into the original equation: 1/(7/3-2)=3 \rightarrow 1/(1/3)=3 \rightarrow 3=3 (valid).

In this case, there are no extraneous solutions, but it illustrates the
```

How to Identify Extraneous Solutions

Identifying extraneous solutions is a crucial skill in Algebra 2. Here are some steps to effectively identify these solutions:

• Step 1: Solve the Equation

importance of verification.

Begin by solving the equation using algebraic methods appropriate to the type of equation (e.g., isolating variables, factoring, or applying the quadratic formula).

• Step 2: Substitute Back

Once you have potential solutions, substitute each solution back into the original equation to check for validity.

• Step 3: Analyze the Results

If a solution does not satisfy the original equation, it is classified as extraneous. Keep track of valid and invalid solutions throughout the process.

• Step 4: Understand the Source

Reflect on the algebraic manipulations performed during the solving process to identify why extraneous solutions may have occurred, such as squaring both sides or multiplying by a variable expression.

By following these steps, students can develop a systematic approach to solving equations while minimizing the occurrence of extraneous solutions.

Strategies to Avoid Extraneous Solutions

While extraneous solutions are often a part of solving algebraic equations, there are strategies students can employ to minimize their occurrence:

• Use Caution with Squaring

When squaring both sides of an equation, remember that this can introduce additional solutions. Always check the solutions against the original equation.

• Isolate Variables Carefully

When isolating variables, ensure that you are not inadvertently altering the equation's conditions, which could lead to extraneous solutions.

• Graphical Verification

Use graphs to visualize the solutions. This can help identify valid intersections and clarify the behavior of functions involved.

• Practice Verification

Make it a habit to verify all solutions by substituting them back into the original equation, reinforcing the importance of checking work.

Implementing these strategies can significantly enhance accuracy in solving equations and reduce the incidence of extraneous solutions.

Conclusion

The concept of extraneous solutions in Algebra 2 serves as an important lesson in the discipline of mathematics. By understanding what extraneous solutions are and how they arise, students can improve their problem-solving skills and mathematical reasoning. Through careful identification and verification of solutions, students can navigate the complexities of algebra with greater confidence. Ultimately, the ability to recognize and deal with extraneous solutions not only aids in mastering Algebra 2 but also lays a solid foundation for advanced mathematical studies.

Q: What is an extraneous solution in algebra?

A: An extraneous solution is a solution that emerges during the process of solving an equation but does not satisfy the original equation when substituted back in.

Q: How can I identify an extraneous solution?

A: To identify an extraneous solution, solve the equation and then substitute each solution back into the original equation. If the substitution does not hold true, it is extraneous.

Q: Why do extraneous solutions occur?

A: Extraneous solutions occur due to algebraic manipulations, such as squaring both sides of an equation or multiplying by a variable expression, which can introduce solutions that do not satisfy the original conditions.

Q: How do I avoid extraneous solutions in my algebra work?

A: You can avoid extraneous solutions by being cautious with operations like squaring, carefully isolating variables, and always verifying your solutions by substituting them back into the original equation.

Q: Are all solutions found in algebraic equations valid?

A: No, not all solutions found during the solving process are valid. It is essential to check each solution against the original equation to determine its validity.

Q: Can extraneous solutions be useful in any way?

A: While extraneous solutions are generally seen as a nuisance, they can highlight the need for careful algebraic manipulation and reinforce the importance of verification in mathematics.

Q: What types of equations are most likely to produce extraneous solutions?

A: Radical equations and rational equations are particularly prone to producing extraneous solutions due to the algebraic operations often required to solve them.

Q: How do extraneous solutions relate to real-world problems?

A: Understanding extraneous solutions helps ensure accuracy when modeling real-world problems mathematically. Valid solutions are crucial for making

Q: Is it common for students to encounter extraneous solutions in Algebra 2?

A: Yes, it is common for students in Algebra 2 to encounter extraneous solutions, particularly when solving complex equations. Recognizing and addressing them is a key part of learning algebra.

What Does Extraneous Mean In Algebra 2

Find other PDF articles:

https://explore.gcts.edu/anatomy-suggest-009/files?docid=hMa26-4926&title=pug-anatomy.pdf

what does extraneous mean in algebra 2: Math is Precise, Period, vs. Math is Precise, Strings Attached William J. Adams, 2010-01-18 This book is the outcome of my conclusion that current mathematics education, taken in total, is a disaster and that by sharing my experience and thoughts about teaching mathematics I might be helpful to colleagues, students, and others who are concerned about mathematics education to mitigate this state of affairs. Mathematics education disaster in what sense? No, it?s not in the sense that I believe insufficient attention is being given to number fundamentals. It has to do with the almost unanimously held erroneous view about the nature, precision, and infallibility of mathematics that we acquire from the current state of mathematics education. Current mathematics education does not prepare us for life in the 21st century, which requires an understanding of the mathematical modeling perspective, of what mathematics can do and its limitations, and an appreciation of the questions that should be considered to help us distinguish numbers that inform from those that deceive. If the wizards of Wall Street had a 21st century mathematics education, there is a good chance that they would not have put unquestioning faith in their value at risk math models and the fi nancial meltdown of 2008-09 would have been avoided, or at least softened. If the nation?s decision makers and the public at large were better educated about what questions to give thought to when numbers continually hurled at them are the basis for decision making, they would be less vulnerable to accepting faulty numbers and all of us would be less at risk to the consequences of bad decision making.

what does extraneous mean in algebra 2: Math Word Problems For Dummies Mary Jane Sterling, 2008-02-05 Covers percentages, probability, proportions, and more Get a grip on all types of word problems by applying them to real life Are you mystified by math word problems? This easy-to-understand guide shows you how to conquer these tricky questions with a step-by-step plan for finding the right solution each and every time, no matter the kind or level of problem. From learning math lingo and performing operations to calculating formulas and writing equations, you'll get all the skills you need to succeed! Discover how to: * Translate word problems into plain English * Brush up on basic math skills * Plug in the right operation or formula * Tackle algebraic and geometric problems * Check your answers to see if they work

what does extraneous mean in algebra 2: Durell's Introductory Algebra Fletcher Durell, 1912

what does extraneous mean in algebra 2: Intermediate Algebra John Tobey, Jeffrey Slater, 1998

what does extraneous mean in algebra 2: <u>Durell's Algebra</u> Fletcher Durell, 1914

what does extraneous mean in algebra 2: Algebra II Workbook For Dummies Mary Jane Sterling, 2014-05-27 To succeed in Algebra II, start practicing now Algebra II builds on your Algebra I skills to prepare you for trigonometry, calculus, and a of myriad STEM topics. Working through practice problems helps students better ingest and retain lesson content, creating a solid foundation to build on for future success. Algebra II Workbook For Dummies, 2nd Edition helps you learn Algebra II by doing Algebra II. Author and math professor Mary Jane Sterling walks you through the entire course, showing you how to approach and solve the problems you encounter in class. You'll begin by refreshing your Algebra I skills, because you'll need a strong foundation to build upon. From there, you'll work through practice problems to clarify concepts and improve understanding and retention. Revisit quadratic equations, inequalities, radicals, and basic graphs Master quadratic, exponential, and logarithmic functions Tackle conic sections, as well as linear and nonlinear systems Grasp the concepts of matrices, sequences, and imaginary numbers Algebra II Workbook For Dummies, 2nd Edition includes sections on graphing and special sequences to familiarize you with the key concepts that will follow you to trigonometry and beyond. Don't waste any time getting started. Algebra II Workbook For Dummies, 2nd Edition is your complete guide to success.

what does extraneous mean in algebra 2: *Algebra and Trigonometry* Mr. Rohit Manglik, 2024-01-22 EduGorilla Publication is a trusted name in the education sector, committed to empowering learners with high-quality study materials and resources. Specializing in competitive exams and academic support, EduGorilla provides comprehensive and well-structured content tailored to meet the needs of students across various streams and levels.

what does extraneous mean in algebra 2: A High School Algebra. (Key.). Jacob William Albert Young, Lambert Lincoln Jackson, 1913

what does extraneous mean in algebra 2: Second Chances Brenda Chapman, 2012-09-01 One summer can change everything... It's 1971, and Darlene's life is about to change as family mysteries are solved and the idealistic teen figures out what to do with her life. This is a coming-of-age story set against the backdrop of peace, love, rock and roll, and the Vietnam War.

what does extraneous mean in algebra 2: Digital SAT Total Prep 2025: Includes 2 Full <u>Length Practice Tests</u>, 1,000+ <u>Practice Questions + 1 Year Access to Online Quizzes and Video</u> Instruction Kaplan Test Prep, 2024-08-20 Digital SAT Total Prep 2025, Kaplan's biggest SAT prep book, has efficient strategies and realistic practice to help you achieve your highest score. It is essential to prepare with up-to-date materials for the SAT's digital, adaptive format. We have everything you need in one big book, plus a full year of access to online resources—including online guizzes and video lessons—to help you master each section of the Digital SAT. We're so certain that Digital SAT Total Prep offers all the guidance you need to excel on the SAT that we guarantee it: After studying with our online resources and book, you'll score higher on the SAT—or you'll get your money back. The Most Practice Two full-length practice tests that mimic the adaptive nature of the SAT 1,100+ practice questions with detailed explanations One-year access to our robust online center with videos and guizzes to help you target your practice Pre-guizzes to help you figure out what you already know and what you can skip. A practice question at the beginning of each lesson to help you guickly identify its focus Targeted practice guestions after every lesson to test your comprehension Mixed practice quizzes after every chapter to assess how much you've learned Test-like practice on mixed topics within every content domain that appears on the SAT to ensure you can measure how much you've learned A detailed overview of the digital SAT, including a breakdown of the sections so you'll know what to expect on Test Day A thorough explanation of the scoring on the Digital SAT Efficient Strategy Methods and strategies for scoring higher on the Digital SAT from Kaplan's SAT experts "On Test Day" strategy notes in every math chapter to help you remember that the SAT math test is primarily a strategy test Reflect pages at the end of each chapter that help you evaluate your comfort level with the topics and make a plan for improving before the test. Online study-planning tool helps you target your prep no matter how much time you have before the test Expert Guidance We know the test: Our learning engineers have put tens of thousands of hours into studying the SAT and use real data to design the most effective strategies

and study plans. Kaplan's books and practice questions are written by veteran teachers who know students—every explanation is written to help you learn. We invented test prep—Kaplan (kaptest.com) has been helping students for 80 years. Publisher's Note: Products purchased from 3rd party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entities included with the product.

what does extraneous mean in algebra 2: Durell's School Algebra Fletcher Durell, 1912 what does extraneous mean in algebra 2: A High School Algebra Jacob William Albert Young, Lambert Lincoln Jackson, 1913

what does extraneous mean in algebra 2: Educational Research R. Burke Johnson, Larry B. Christensen, 2024-08-12 Educational Research: Quantitative, Qualitative, and Mixed Approaches by R. Burke Johnson and Larry Christensen offers a comprehensive, accessible introduction to research methods for undergraduate and graduate students. Readers will develop an understanding of the multiple research methods and strategies used in education and related fields, including how to read and critically evaluate published research and how to write a proposal, construct a questionnaire, and conduct an empirical research study on their own. The Eighth Edition maintains the features that made this book a best-seller, including attention-grabbing chapter-opening vignettes, lively examples that engage student interest, a conversational and friendly writing style, and more. Fully updated for the Seventh Edition of the Publication Manual of the American Psychological Association, this new edition includes expanded information on research ethics and IRBs, expanded and more current information on sampling and causation across research designs, and the latest thinking on mixed methods research. Designed to make learning about research methods enjoyable without sacrificing the necessary rigor, this highly readable text transforms readers into critical consumers and users of research.

what does extraneous mean in algebra 2: CliffsQuickReview Math Word Problems Karen L. Anglin, 2007-05-21 CliffsQuickReview course guides cover the essentials of your toughest classes. Get a firm grip on core concepts and key material, and test your newfound knowledge with review questions. CliffsOuickReview Math Word Problems gives you a clear, concise, easy-to-use review of the basics of solving math word problems. Introducing each topic, defining key terms, and carefully walking you through each sample problem gives you insight and understanding to solving math word problems. You begin by building a strong foundation in translating expressions, inserting parentheses, and simplifying expressions. On top of that base, you can build your skills for solving word problems: Discover the six basic steps for solving word problems Translate English-language statements into equations and then solve them Solve geometry problems involving single and multiple shapes Work on proportion and percent problems Solve summation problems by using the Board Method Use tried-and-true methods to solve problems about money, investments, mixtures, and distance CliffsOuickReview Math Word Problems acts as a supplement to your textbook and to classroom lectures. Use this reference in any way that fits your personal style for study and review - you decide what works best with your needs. Here are just a few ways you can search for information: View the chapter on common errors and how to avoid them Get a glimpse of what you'll gain from a chapter by reading through the Chapter Check-In at the beginning of each chapter Use the Chapter Checkout at the end of each chapter to gauge your grasp of the important information you need to know Test your knowledge more completely in the CQR Review and look for additional sources of information in the CQR Resource Center Use the glossary to find key terms fast With titles available for all the most popular high school and college courses, CliffsQuickReview guides are a comprehensive resource that can help you get the best possible grades.

what does extraneous mean in algebra 2: Algebraic Techniques Hassan Aït-Kaci, Maurice Nivat, 2014-05-10 Resolution of Equations in Algebraic Structures: Volume 1, Algebraic Techniques is a collection of papers from the Colloquium on Resolution of Equations in Algebraic Structures held in Texas in May 1987. The papers discuss equations and algebraic structures relevant to symbolic computation and to the foundation of programming. One paper discusses the complete lattice of simulation congruences associated with the ground atomic theory of hierarchical specification,

retrieving as the lattice's maximum element Milner's strong bisimulation for CCS. Another paper explains algebraic recognizability of subsets of free T-algebras, or equational theories, and covers discrete structures like those of words, terms, finite trees, and finite graphs. One paper proposes a general theory of unification using a category theoretic framework for various substitution systems including classical unification, E-unification, and order-sorted unification. Another paper shows the universality of algebraic equations in computer science. Fixpoint theorems in ordered algebraic structures can be applied in computer science. These theorems, or their variations, include semantics and proof theory, logic programming, as well as efficient strategies for answering recursive queries in deductive data bases. The collection is suitable for programmers, mathematicians, students, and instructors involved in computer science and computer technology.

what does extraneous mean in algebra 2: Algebraic Aspects of Cryptography Neal Koblitz, 2012-12-06 This book is intended as a text for a course on cryptography with emphasis on algebraic methods. It is written so as to be accessible to graduate or advanced undergraduate students, as well as to scientists in other fields. The first three chapters form a self-contained introduction to basic concepts and techniques. Here my approach is intuitive and informal. For example, the treatment of computational complexity in Chapter 2, while lacking formalistic rigor, emphasizes the aspects of the subject that are most important in cryptography. Chapters 4-6 and the Appendix contain material that for the most part has not previously appeared in textbook form. A novel feature is the inclusion of three types of cryptography - hidden monomial systems, combinatorial-algebraic sys tems, and hyperelliptic systems - that are at an early stage of development. It is too soon to know which, if any, of these cryptosystems will ultimately be of practical use. But in the rapidly growing field of cryptography it is worthwhile to continually explore new one-way constructions coming from different areas of mathematics. Perhaps some of the readers will contribute to the research that still needs to be done. This book is designed not as a comprehensive reference work, but rather as a selective textbook. The many exercises (with answers at the back of the book) make it suitable for use in a math or computer science course or in a program of independent study.

what does extraneous mean in algebra 2: From Reading to Math Maggie Siena, 2009 Assessment --

what does extraneous mean in algebra 2: Applied Statistics: From Bivariate Through Multivariate Techniques Rebecca M. Warner, 2013 Rebecca M. Warner's Applied Statistics: From Bivariate Through Multivariate Techniques, Second Edition provides a clear introduction to widely used topics in bivariate and multivariate statistics, including multiple regression, discriminant analysis, MANOVA, factor analysis, and binary logistic regression. The approach is applied and does not require formal mathematics; equations are accompanied by verbal explanations. Students are asked to think about the meaning of equations. Each chapter presents a complete empirical research example to illustrate the application of a specific method. Although SPSS examples are used throughout the book, the conceptual material will be helpful for users of different programs. Each chapter has a glossary and comprehension questions.

what does extraneous mean in algebra 2: Developmental Disabilities Abstracts, 1977 what does extraneous mean in algebra 2: Statistics Using Stata Sharon Lawner Weinberg, Sarah Knapp Abramowitz, Daphna Harel, 2023-11-30 Statistics Using Stata uses a highly accessible and lively writing style to seamlessly integrate the learning of the latest version of Stata (17) with an introduction to applied statistics using real data in the behavioral, social, and health sciences. The text is comprehensive in its content coverage and is suitable at undergraduate and graduate levels. It requires knowledge of basic algebra, but no prior coding experience. It is uniquely focused on the importance of data management as an underlying and key principle of data analysis. It includes a .do-file for each chapter, that was used to generate all figures, tables, and analyses for that chapter. These files are intended as models to be adapted and used by readers in conducting their own research. Additional teaching and learning aids include solutions to all end-of-chapter exercises and PowerPoint slides to highlight the important take-aways of each chapter.

Related to what does extraneous mean in algebra 2

DOES Definition & Meaning | Does definition: a plural of doe.. See examples of DOES used in a sentence

DOES Definition & Meaning - Merriam-Webster The meaning of DOES is present tense third-person singular of do; plural of doe

"Do" vs. "Does" - What's The Difference? | Both do and does are present tense forms of the verb do. Which is the correct form to use depends on the subject of your sentence. In this article, we'll explain the difference

DOES | **English meaning - Cambridge Dictionary** DOES definition: 1. he/she/it form of do 2. he/she/it form of do 3. present simple of do, used with he/she/it. Learn more

does verb - Definition, pictures, pronunciation and usage Definition of does verb in Oxford Advanced Learner's Dictionary. Meaning, pronunciation, picture, example sentences, grammar, usage notes, synonyms and more

DOES definition and meaning | Collins English Dictionary does in British English ($d_{\Lambda Z}$) verb (used with a singular noun or the pronouns he, she, or it) a form of the present tense (indicative mood) of do 1

Does vs does - GRAMMARIST Does and does are two words that are spelled identically but are pronounced differently and have different meanings, which makes them heteronyms. We will examine the definitions of the

Do VS Does | Rules, Examples, Comparison Chart & Exercises Master 'Do vs Does' with this easy guide! Learn the rules, see real examples, and practice with our comparison chart. Perfect for Everyone

Grammar: When to Use Do, Does, and Did - Proofed We've put together a guide to help you use do, does, and did as action and auxiliary verbs in the simple past and present tenses

Mastering 'Do,' 'Does,' and 'Did': Usage and Examples 'Do,' 'does,' and 'did' are versatile auxiliary verbs with several key functions in English grammar. They are primarily used in questions, negations, emphatic statements, and

DOES Definition & Meaning | Does definition: a plural of doe.. See examples of DOES used in a sentence

DOES Definition & Meaning - Merriam-Webster The meaning of DOES is present tense third-person singular of do; plural of doe

"Do" vs. "Does" - What's The Difference? | Both do and does are present tense forms of the verb do. Which is the correct form to use depends on the subject of your sentence. In this article, we'll explain the difference

DOES | **English meaning - Cambridge Dictionary** DOES definition: 1. he/she/it form of do 2. he/she/it form of do 3. present simple of do, used with he/she/it. Learn more

does verb - Definition, pictures, pronunciation and usage Definition of does verb in Oxford Advanced Learner's Dictionary. Meaning, pronunciation, picture, example sentences, grammar, usage notes, synonyms and more

DOES definition and meaning | Collins English Dictionary does in British English ($d_{\Lambda Z}$) verb (used with a singular noun or the pronouns he, she, or it) a form of the present tense (indicative mood) of do 1

Does vs does - GRAMMARIST Does and does are two words that are spelled identically but are pronounced differently and have different meanings, which makes them heteronyms. We will examine the definitions of the

Do VS Does | Rules, Examples, Comparison Chart & Exercises Master 'Do vs Does' with this easy guide! Learn the rules, see real examples, and practice with our comparison chart. Perfect for Everyone

Grammar: When to Use Do, Does, and Did - Proofed We've put together a guide to help you use do, does, and did as action and auxiliary verbs in the simple past and present tenses

Mastering 'Do,' 'Does,' and 'Did': Usage and Examples 'Do,' 'does,' and 'did' are versatile auxiliary verbs with several key functions in English grammar. They are primarily used in questions, negations, emphatic statements, and

DOES Definition & Meaning | Does definition: a plural of doe.. See examples of DOES used in a sentence

DOES Definition & Meaning - Merriam-Webster The meaning of DOES is present tense third-person singular of do; plural of doe

"Do" vs. "Does" - What's The Difference? | Both do and does are present tense forms of the verb do. Which is the correct form to use depends on the subject of your sentence. In this article, we'll explain the difference

DOES | **English meaning - Cambridge Dictionary** DOES definition: 1. he/she/it form of do 2. he/she/it form of do 3. present simple of do, used with he/she/it. Learn more

does verb - Definition, pictures, pronunciation and usage Definition of does verb in Oxford Advanced Learner's Dictionary. Meaning, pronunciation, picture, example sentences, grammar, usage notes, synonyms and more

DOES definition and meaning | Collins English Dictionary does in British English ($d_{\Lambda Z}$) verb (used with a singular noun or the pronouns he, she, or it) a form of the present tense (indicative mood) of do 1

Does vs does - GRAMMARIST Does and does are two words that are spelled identically but are pronounced differently and have different meanings, which makes them heteronyms. We will examine the definitions of the

Do VS Does | Rules, Examples, Comparison Chart & Exercises Master 'Do vs Does' with this easy guide! Learn the rules, see real examples, and practice with our comparison chart. Perfect for Everyone

Grammar: When to Use Do, Does, and Did - Proofed We've put together a guide to help you use do, does, and did as action and auxiliary verbs in the simple past and present tenses **Mastering 'Do,' 'Does,' and 'Did': Usage and Examples** 'Do,' 'does,' and 'did' are versatile auxiliary verbs with several key functions in English grammar. They are primarily used in questions, negations, emphatic statements, and

Back to Home: https://explore.gcts.edu