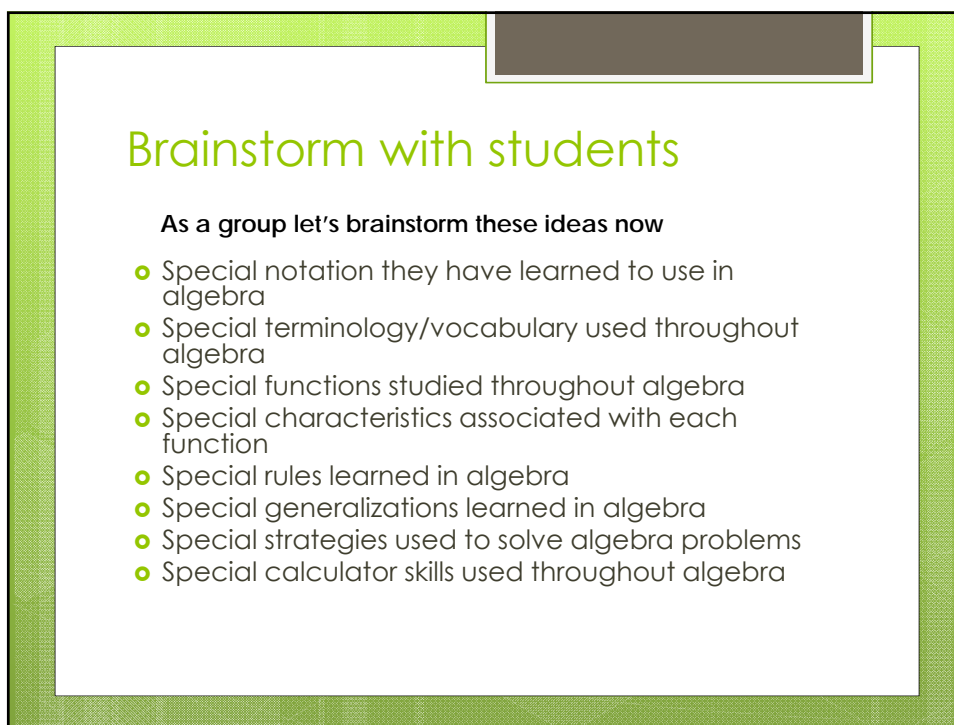


The slide features a light green background with a subtle pattern of overlapping hexagons. A dark grey rectangular box is positioned in the upper right corner. Below this box, the title 'Algebra I "Before the Test" Topics' is written in a green, sans-serif font. Underneath the title, the author's name 'Jim Rahn' is listed, followed by two lines of contact information: the website 'www.jamesrahn.com' and the email 'James.rahn@verizon.net', both in a smaller green font.

Algebra I "Before the Test" Topics

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The slide has a light green background with a hexagonal pattern. A dark grey rectangular box is located at the top right. The main content is enclosed in a white rectangular area with a thin green border. The title 'Brainstorm with students' is in a large green font. Below it, a bolded instruction reads 'As a group let's brainstorm these ideas now'. This is followed by a bulleted list of eight items, each starting with a green circle.

Brainstorm with students

As a group let's brainstorm these ideas now

- Special notation they have learned to use in algebra
- Special terminology/vocabulary used throughout algebra
- Special functions studied throughout algebra
- Special characteristics associated with each function
- Special rules learned in algebra
- Special generalizations learned in algebra
- Special strategies used to solve algebra problems
- Special calculator skills used throughout algebra

Notation on Both Algebra I and Algebra II End-of-Course Exams

Absolute value functions: $f(x) = -3|x + 2| + 1$

Set notation: $\{-1, 0, 4\}$ for solution sets

Negative fractions and rational expressions: $-\frac{2}{3} - \frac{x+1}{x}$

Monomials involving roots and exponents: $x^2 y \sqrt[4]{z^3}$
(x squared multiplied by y multiplied by the fourth root of z cubed)

Check off all standards that you believe you have taught successfully.
With which standards will your students be proficient?

O: Operations on Numbers and Expressions

O1. Number Sense and Operations

- O1.a Reasoning with real numbers
- O1.b Using ratios, rates, and proportions
- O1.c Using numerical exponential expressions
- O1.d Using numerical radical expressions

O2. Algebraic Expressions

- O2.a Using algebraic exponential expressions
- O2.b Operating with polynomial expressions
- O2.c Factoring polynomial expressions
- O2.d Using algebraic radical expressions

L: Linear Relationships

L1. Linear Functions

- L1.a Representing linear functions in multiple ways
- L1.b Analyzing linear function
- L1.c Graphing linear functions involving absolute value
- L1.d Using linear models

L2. Linear Equations and Inequalities

- L2.a Solving linear equations and inequalities
- L2.b Solving equations involving absolute value
- L2.c Graphing linear inequalities
- L2.d Solving systems of linear equations
- L2.e Modeling with single variable linear equations, one- or two-variable inequalities or systems of equations

N: Non-linear Relationships

N1. Non-linear Functions

- N1.a Representing quadratic functions in multiple ways
- N1.b Distinguishing between function types
- N1.c Using quadratic models

N2. Non-linear Equations

- N2.a Solving literal equations
- N2.b Solving quadratic equations

D: Data, Statistics and Probability

D1. Data and Statistical Analysis

- D1.a Interpreting linear trends in data
- D1.b Comparing data using summary statistics
- D1.c Evaluating data-based reports in the media

D2. Probability

- D2.a Using counting principles
- D2.b Determining probability

Analyzing your lists

- Compare your lists.
- What are your strengths at this point?
- What topics do you need to help students with?
- What do the lists illustrate?

Prior knowledge/topic:

- Perimeter of polygons
- Area of parallelograms
- Area of trapezoids
- Area and circumference of circles
- Area of triangles (not requiring trigonometry)
- Volume of rectangular prisms
- Surface area of right prisms with rectangular or triangular bases

- Definitions of basic geometric figures: line, line segment, ray, parabola
- • Pythagorean Theorem
- Similar figures
- Scale factors
- Sum of the interior angles of a triangle equals 180°
- Simple and compound interest

Standard measurement conversions

- 12 inches = 1 foot
- 3 feet = 1 yard
- 5,280 feet = 1 mile
- 8 ounces = 1 cup
- 2 cups = 1 pint
- 2 pints = 1 quart
- 4 quarts = 1 gallon
- 16 ounces = 1 pound
- 2,000 pounds = 1 ton
- Metric conversions
 - Using liters, meters, and grams
 - 10 milli = 1 centi
 - 10 centi = 1 deci
 - 10 deci = 1 base
 - 10 base = 1 deca
 - 10 deca = 1 hecto
 - 10 hecto = 1 kilo
- Time
 - 60 seconds = 1 minute
 - 60 minutes = 1 hour
 - 24 hours = 1 day
 - 7 days = 1 week
 - For purposes of this test, assume 1 year to be 365 days, 52 weeks, or 12 months.

- Quadratic Formula (Quadratic equations may be solved in multiple ways, however if a student chooses to use this method, the formula will not be provided. For this assessment, solutions will be rational.)
- Perfect squares from 1-25
- Approximate square roots (which two consecutive whole numbers a square root lies between)
- Forms of a linear equation: standard, slope-intercept, point-slope
- Distance = rate x time
- Distance formula (distance between two points on a line)
- For items where a student is required to graph the equation or function, axes and scales should be labeled. If the item is written in a context, the labels and scales must be appropriate within the context of the item, including units (e.g., dollars, seconds, etc).
- Students are expected to graph the solution set over the set of real numbers to indicate the key characteristics of the graph, unless the domain is restricted by the content of the item.

Assumptions being made

- All algebraic expressions are defined.
- All radical expressions represent real numbers.
- All graphs are graphed over the set of real numbers.
- All spinners, number cubes and coins are fair.
- All events are equally likely and samples are representative of the population.
- All selections from a box, bag, bowl, etc. are considered random selections, without looking.

Assumptions being made

- When specified that an exact answer is required, answers should be expressed in terms of π . If not specified, answers may be expressed in terms of π , or 3.14 or $\frac{22}{7}$ may be used as an approximation for π .

Analyzing the Practice Test

- Study the four standards. Place the four standards in order to indicate which standard your students are best prepared for and which they are least prepared for.
- ____ Linear Equations and Functions and Inequalities
- ____ Non-Linear Functions
- ____ Number Sense and Operations and Algebraic Expressions
- ____ Data Analysis and Statistical Analysis and Probability
-

Studying the Practice Test in Depth

- Select two standards that you believe your students need more work with.
- Study the content of the standards from the Achieve List. Be prepared to explain to the others the depth of knowledge the students must have for those standards.

- Identify three things you think you can do in the remaining time to improve your student performance in their weakest standard.

Studying the Questions on the Practice Test

- Select four problems that you believe your students could face difficulty with if they found that problem on the EOC.
- Identify two strategies that you could use with your students in the remaining time to improve their performance with those four problems.
- What other questions could you pull from this year's study of Algebra that will help them be ready to answer this question, or type of question?

Test Taking Strategies

- Read each word problem.
- Try to get a picture of what the problem is describing.
- Try to estimate the answer to the problem.
- Look to see if any of the answer appear to be match your estimate. i.e. if you are asked to answer $48 \times 12 = ?$, you could expect a number around 500, but if you end up with an answer around 5000, you'll know you did something wrong

On constructed Response Questions

- Show all your work (especially when partial credit is awarded) and
- write as legibly as possible
- make sure you are answering the question asked.
- Even if you think the final answer is wrong don't erase your entire work because you may get partial credit for using the correct procedure.

Ideas to work on Prior to Testing Day

- When giving practice tests help students to budget their time
- Although the test is officially untimed, there are usually about 24 questions which need to be completed in about 60 minutes. This means that students have about 2 ½ minutes per question.
- Make sure can have sufficient time for all questions on the practice tests.
- Explain the point value of questions to the students.
- Say things to the students like:
 - Be positive throughout all the review for the test.
 - Remind students that they have learned a lot of new material.
 - Remind students that "They can do it. Keep modeling how they are capable of solving numerous type of questions.

Reminders for the Day Before the Test or the Day of the Test

- Eat before a test. Having food in your stomach will give you energy and help you focus but avoid heavy foods which can make you groggy.
- Keep a positive attitude throughout the whole test and try to stay relaxed. If you start to feel nervous take a few deep breaths to relax.
- Keep your eyes on your own paper, you don't want to appear to be cheating and cause unnecessary trouble for yourself.
- When you first receive your test, do a quick survey of the entire test so that you know how to efficiently budget your time.

- Do the easiest problems first. Don't stay on a problem that you are stuck on especially when time is a factor. After finishing the exam, use all the remaining time to re-check and proofread your exam and to work out omitted items.
- Write legibly. If the grader can't read what you wrote, they'll most likely mark it wrong.
- Always read the whole question carefully. Don't make assumptions about what the question might be.
- Make sure that you understand what the question is asking you.
- Make sure that you write down everything that is asked of you and more. The more details and facts that you write down, the higher your grade is going to be.

- If you don't know an answer, skip it. Go on with the rest of the test and come back to it later. Other parts of the test may have some information that will help you out with that question.
- Don't rush through any problem.
- Don't assume you know what the question is asking without completely reading the question
- Think of how you did problems like this during the year.
- Look for keywords that will help you know how to solve the problem.
- Don't worry if others finish before you. Focus on the test in front of you.
- Budget your time, don't spend the entire test time on just a few questions.
- If you have time left when you are finished, look over your test.
- Make sure that you have answered all the questions, only change an answer if you misread or misinterpreted the question because the first answer that you put is usually the correct one.
- Watch out for careless mistakes and proofread your essay and/or short answer questions.

- Throughout the exam focus on remaining calm, relaxed and positive.
- Make sure you are breathing regular and slowing from your lower lungs.
- Relax any tight neck or shoulder muscles and push away any negative or disturbing thoughts.
- Keep saying positive things to yourself.
- When you can't answer a question make a good educated guess encourage students to try to using estimation to weed out some of the multiple choice answer.