


ipdae INSTITUTE FOR THE PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS



Math GED® Content and Strategies Training
www.floridaipdae.org

Training Facilitator: Ronald Cruz

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.

ipdae INSTITUTE FOR THE PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Introductions

Ronald Cruz (Training Facilitator)

- Administrative Coordinator of the CARIBE Refugee Program
- Hillsborough County Public Schools Peer Evaluator 2010-2013
- Mathematics Teacher (Pre-Algebra, Algebra 1 & 2, Advanced Mathematics, Pre-Calculus, Selected Topics in Mathematics, AP Calculus AB & BC, Physical Science and Physics) 2001-2010
- Math and Science Department Head 2005-2008
- Supervising Teacher 2001-2003
- Robotics Coach
- Grant Coordinator Learn and Serve America
- Adult Education Credit Teacher 2008-2013
- Hillsborough County Master Trainer (Technology in the Classroom, Lesson Planning, Teacher Evaluation, Using Data to Improve Programs, Smart Board, GED Mathematics and PLC Facilitation)




Linkedin:
www.linkedin.com/in/roneroncruz/
Email:
ronald.cruz@live.com

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.

ipdae INSTITUTE FOR THE PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Connections Activity

- All participants should be seated in groups around their respective tables.
- 5 randomly selected participants will be given a ball of yarn.
- Starting with the 5 participants from each group, they will share something about themselves (hobbies, likes, school, about students, trips, family, something special or interesting).
- Once they find a participant that has the same thing in common, they will then pass the ball of yarn, keeping one end of the yarn.
- This turn will continue until every person is holding a piece of yarn or after 5-7 minutes.

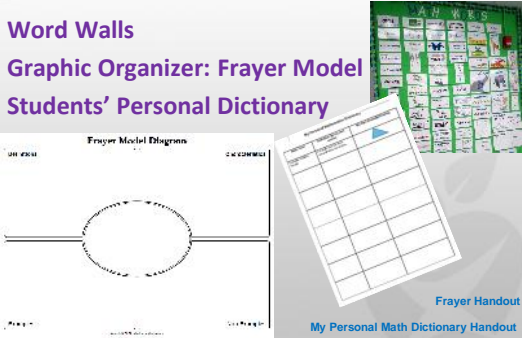


©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.

ipdae
INSTITUTE FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Extending the Activity

- Word Walls
- Graphic Organizer: Frayer Model
- Students' Personal Dictionary



©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
INSTITUTE FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Learning Objectives

By the end of this training participants must be able to:


- Demonstrate increased understanding of the 2014 GED Test
- Understand the standards assessed by the 2014 GED Test
- Become familiarized with the format of the 2014 GED Test
- Demonstrate understanding of Webb's Depth of Knowledge Framework
- Apply strategies implementing the five Mathematical Practices outlined in the 2014 GED Assessment Guide
- Apply TI-30XS calculator skills when solving problems
- Identify and address weakest content indicators released by GED Testing Service.
- Identify and address common student misconceptions
- Solve 2014 GED Released Sample Items
- Implement a plethora of strategies and develop ways to implement certain strategies to meet various students' needs.
- Explore materials and resources that will engage students

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
INSTITUTE FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Curriculum Framework

Florida Department of Education
2014-2015 Curriculum Frameworks
GED® Mathematics Reasoning




©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
INSTITUTE FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Exploring the Math Reasoning Module

Please visit myged.com to and view the webinar on Exploring the Mathematical Reasoning Module of 2014 GED Test to get more information on the framework, content and format of the new test.



<http://youtu.be/LtXOZCztq64>

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.

ipdae
INSTITUTE FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Differences

2002 Series GED® test	2014 GED® test
<ul style="list-style-type: none"> One test with two parts, one of which allowed use of calculator Content <ul style="list-style-type: none"> 25-30% Number Operations, Number Sense 25-30% Measurement and Geometry 25-30% Data, Statistics, and Probability 25-30% Algebra, Functions and Patterns Casio fx260-Solar Item types <ul style="list-style-type: none"> Multiple choice Gridded response Coordinate plane grid 	<ul style="list-style-type: none"> One test with calculator allowed on most items Content <ul style="list-style-type: none"> 45% - Quantitative Problem Solving <ul style="list-style-type: none"> Number operations Geometric thinking 55% - Algebraic Problem Solving Texas Instruments - TI 30XS Integration of mathematical practices Technology-Enhanced Items <ul style="list-style-type: none"> Multiple choice Fill-in-the-blank Hot-spot Drag-and-drop Drop-down

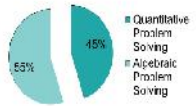
©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.

ipdae
INSTITUTE FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Differences

Mathematical Reasoning

- Some items require
 - procedural skill
 - flucncy
 - problem solving
- Presented in academic and workforce contexts
- Statistics and data interpretation standards are also included in other tests



GED
TESTING SERVICE

www.gedtesting-service.com

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.

ipdae BY EDUCATORS FOR EDUCATORS

Similarities

2002 GED® test	2014 GED® test
<ul style="list-style-type: none"> • Represent and use numbers in a variety of forms • Calculate mentally, on paper, and with a calculator • Represent, analyze, and apply whole numbers, decimals, fractions, percents in a wide variety of situations. • Use Pythagorean Theorem 	<ul style="list-style-type: none"> • Apply number sense concepts with rational numbers • Perform operations on rational number • Solve multistep, arithmetic, real-world problems with rational numbers, ratios or proportions, percents. • Use Pythagorean Theorem

GED
TESTING SERVICE

©2014 IPDIE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Similarities

2002 GED® test	2014 GED® test
<ul style="list-style-type: none"> • Solve and estimate solutions to problems involving, length, perimeter, area, surface area, volume • Evaluate formulas 	<ul style="list-style-type: none"> • Compute surface area and volume of composite 3-D geometric figures, given formulas as needed • Evaluate linear, polynomial, and rational expressions by substituting integers for unknown quantities

GED
TESTING SERVICE

©2014 IPDIE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

What's new?

» **What's new on the 2014 Mathematical Reasoning Test?**

- Identify absolute value of a rational number
- Determine when a numerical expression is undefined
- Factor polynomial expressions
- Solve linear inequalities
- Identify or graph the solution to a one variable linear inequality
- Solve real-world problems involving inequalities
- Write linear inequalities to represent context
- Represent or identify a function in a table or graph

GED
TESTING SERVICE

www.gedtesting-service.com

©2014 IPDIE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
INSTITUTIONS FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

What's NOT included?

What's not on the 2014 Mathematical Reasoning Test?

- Select the appropriate operations to solve problems
- Relate basic arithmetic operations to one another
- Use estimation to solve problems and assess the reasonableness of an answer
- Identify and select appropriate units of metric and customary measures
- Read and interpret scales, meters, and gauges
- Compare and contrast different sets of data on the basis of measures of central tendency
- Recognize and use direct and indirect variation

GED TESTING SERVICE

www.gedtesting.com

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
INSTITUTIONS FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Navigating the Item Sampler

Look for:

- Calculator
- Calculator Reference
- Formula Sheet
- Æ Symbol
- Flag for Review
- Answer Explanation

GED TESTING SERVICE
THE 2014 GED® TEST ON COMPUTER
Mathematical Reasoning
Practice Test

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
INSTITUTIONS FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Webb's Depth of Knowledge

Level 1: Recall
Level 2: Skill/Concept
Level 3: Strategic Thinking
Level 4: Extended Thinking

Webb's DOK Handout

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Workshop Format

Group Components:

1. Content Standard/Indicator
2. Hands-On or Technology Activity
3. Mathematical Practices
4. Paper and Pencil Activity
5. Common Misconceptions/Errors
6. Calculator Tip/Practice
7. Released Item Sample

©2014 IPD&E. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 1

Standards/Indicators: Area and Perimeter

Indicator Code*	Skill/Description
3.4.b	Compute the area and circumference of circles. Find the radius or diameter of a circle when given the area or circumference.
3.4.c	Compute the perimeter and area of polygons. Find side lengths of a polygon when given the perimeter or area.
3.4.g	Compute the perimeter and area of two-dimensional composite shapes, which could include circles.

Skills Test Takers are Missing Handout

©2014 IPD&E. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 1

Hands-On Activity: Mathematical Exploration

1. Measure the circumference and diameter of designated objects at your table using a tape measure. Record your data on the table above. (Note: To measure the circumference of an object, you may want to wrap a piece of string around the object, and then measure the string.)
2. Use your calculator to compute the ratio of Circumference to Diameter for each object. Record your answers in the last column of the table above. Round this ratio to the nearest thousandths.
3. Find two other circular objects. Add them to the table above, measure the circumference and diameter for each, and then compute the ratio for each object.
4. Ask all the members of your group to gather around and form a circle as best as you can. Do the same steps as you previously did with the other circular objects. Add your data to the table above, measure the circumference and diameter, and then compute the ratio for your group circle.

Object	Radius	Diameter	Circumference	Ratio

Circumference Handout
What is Pi? Activity Sheet

©2014 IPD&E. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 1


Mathematical Practices

MP2. Abstracting Problems:

- Represent real world problems visually and algebraically.
- Recognize the important and salient attributes of a problem.

MP4. Mathematical Fluency:

- Manipulate and solve arithmetic expressions.
- Transform and solve algebraic expression.
- Display data or algebraic expressions graphically.




©2014 IPOE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

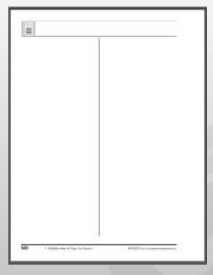
ipdae BY EDUCATORS FOR EDUCATORS

Content Group 1

GED Formula Sheet



TI-30XS T-Chart

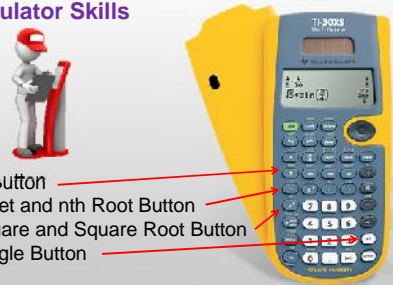


©2014 IPOE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 1

Calculator Skills




- Pi Button
- Caret and nth Root Button
- Square and Square Root Button
- Toggle Button

©2014 IPOE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
BY EDUCATORS FOR EDUCATORS

Content Group 1

Calculator Reference



Take a moment to try out these buttons by following the steps under Powers and Roots and Toggle Key portions from your Calculator reference sheet.


You may request a poster copy of this reference sheet by contacting: help@GEDtestingservice.com

©2014 IPOE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
BY EDUCATORS FOR EDUCATORS

Content Group 1

Let's pause for a 10 minute break.



©2014 IPOE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
BY EDUCATORS FOR EDUCATORS

Content Group 1

Differentiated Small Group Activity

1. Each group will be assigned a problem set.
2. Your group will be given 15 minutes to work as many or all problems in your set.
3. Use the poster paper and markers to show your solution.
4. Do not forget to write the problem on your poster paper so all participants can understand what you are solving.
5. Assign a group reporter who will talk about your solution(s) and answer(s) to the whole class.




©2014 IPOE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
INSTITUTE FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Content Group 1

Common Student Errors or Misconceptions

1. Eyeballing the question by using addition and subtraction techniques.
2. Not recognizing Pythagorean Triples
3. Not reading the entire problem.
4. Ignoring the diagram(s).
5. Failing to check reasonableness of answers (i.e. triangle angle sum or triangle inequality)



©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
INSTITUTE FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Content Group 1

GED Item Sampler #10

Mathematical Practices - Candidate View

Answer Explanation: [Calculator](#) [Flag for Review](#)

A tree is growing in a park. The trunk of the tree is 10 feet tall and 10 inches in diameter. The trunk of the tree is 10 inches in diameter.

Tree 1		Tree 2	
Year	Trunk diameter (inches)	Year	Trunk diameter (inches)
1	13.5	1	11.4
2	18.2	2	12.6
3	19.9	3	12.6
4	20.4	4	12.2
5	21.0	5	11.8
6	21.5	6	11.4
7	22.0	7	11.0

The trunk of the tree is 10 feet tall. What is the diameter of the trunk of the tree in inches?

Tree Wiper
10 inches

The trunk of the tree is 10 feet tall. What is the diameter of the trunk of the tree in inches?

Ⓐ 10
Ⓑ 11
Ⓒ 12
Ⓓ 22

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae
INSTITUTE FOR PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

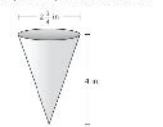
Content Group 1

GED Item Sampler #12

Mathematical Reasoning - Candidate View

Answer Explanation: [Flag for Review](#) [Calculator Reference](#)

An office uses paper that is 11 inches wide and 17 inches long.



What is the volume of the cone in cubic inches?

Ⓐ 2.4
Ⓑ 7.4
Ⓒ 25.7
Ⓓ 21.7


©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 2

Standards/Indicators: Ratios, Proportions and Percents

Indicator Code	Skills Testers Filter
2.5.1	Use ratios to express relationships between quantities. Compare ratios to find the equivalent ratios.
2.5.2	Solve real-world problems involving percentages, such as finding the percent of a whole, finding the whole, finding the percent increase and decrease.



Skills Test Takers are Missing Handout

©2014 IPDIE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 2

Hands-On Activity: Designing a Garden



Designing a Garden Activity Sheet


©2014 IPDIE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 2

Hands-On Activity: Designing a Garden

1. Imagine your group as a team of garden designers.
2. Read the email you received from a customer.
3. Use the Garden Plan to sketch the features requested from the email. (3 minutes)
4. As a group decide on the final Garden Plan.
5. Draw your Garden Plan to scale on the provided poster paper, including your calculations and reasoning. (5 minutes)
6. Make sure to label the scale you used to draw the plan.
7. When your group is finished, post your work in a suitable wall space.



Designing a Garden Activity Sheet

©2014 IPDIE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.


ipdae BY EDUCATORS FOR EDUCATORS

Content Group 2

Strategy: Gallery Walk

Designing a Garden

1. Gather a writing instrument and some post-it notes.
2. Group around your group's poster.
3. When the facilitator gives the signal all groups will rotate one step clockwise to the next group's poster.
4. Analyze the group's work and provide feedback by writing you feedback on a post-it note and sticking the note on the side of the group's poster.
5. Groups will stay at each station for 1 minute.
6. Groups will continue to rotate between posters until all groups get back to their own poster. Your group will then have another minute to read other group's feedback.



©2014 IPD&E. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 2

Mathematical Practices

MP1. Building Solution Pathways and Lines of Reasoning

- Search for and recognize entry points for solving a problem.
- Plan a solution pathway or outline a line of reasoning.
- Select the best solution pathway, according to given criteria.

MP2. Abstracting Problems


- Represent real world problems visually and algebraically.

MP4. Mathematical Fluency

- Manipulate and solve arithmetic expressions.

MP5. Evaluating Reasoning and Solution Pathways

- Recognize flaws in others' reasoning.
- Identify the information required to evaluate a line of reasoning.




©2014 IPD&E. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 2

Calculator Skills



- Fraction Button
- Percent Button


©2014 IPD&E. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 2

Common Student Errors or Misconceptions

1. Forgetting to convert to the same units of measure before computations.
2. Forgetting to look back for what is being asked in the problem (i.e. units, simple interest vs. total amount).
3. Incorrectly setting up proportion (inconsistent).
4. Incorrect use of formula.



©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators


ipdae BY EDUCATORS FOR EDUCATORS

Content Group 2

Paper and Pencil Activities for your Students

- Interview
- Buying Concert Tickets
- Going Shopping
- Creating a Menu

***All these worksheets are also stored in your Math DefragGED USB Drive.**

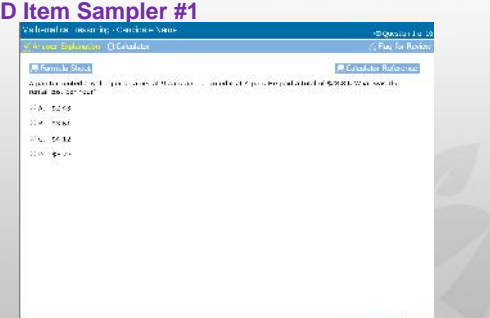


©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 2

GED Item Sampler #1



©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 2

GED Item Sampler #4

Calculator Reference

Directions: Use the calculator to solve the problem. Round your answer to the nearest hundredth.

What is the sum of the reciprocals of 3 and 4?

A. 5.67
 B. 2.25
 C. 15.16
 D. 8.24

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.

ipdae BY EDUCATORS FOR EDUCATORS

Content Group 2

Links to Practice Exercises:


- **Tutorial Video:** <http://www.virtualnerd.com/common-core/grade-7/7-RP-ratios-proportional-relationships/A/3/percent-change-definition>
- **Percent Change Practice:** <http://www.ixl.com/math/grade-8/percent>
- **Percent Applications:** <http://www.ixl.com/math/grade-8/consumer-math>
- **Scale Drawings and Scale Factors:** <http://www.ixl.com/math/grade-7/ratios-and-proportion>

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.

ipdae BY EDUCATORS FOR EDUCATORS

End of Morning Session

Lunch Break!
Please be back in an hour.



Math GED® Content and Strategies Training
with Calculator Exercises

©2014 IPDAE. All rights reserved. All content in this presentation is the proprietary property of The Institute for the Professional Development of Adult Educators.
