

Introducing the New
Iowa Assessments™
Mathematics
Levels 15 – 17/18

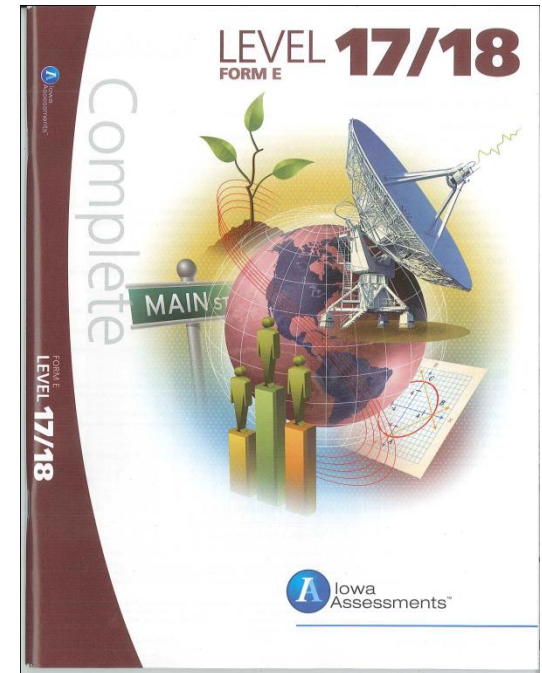
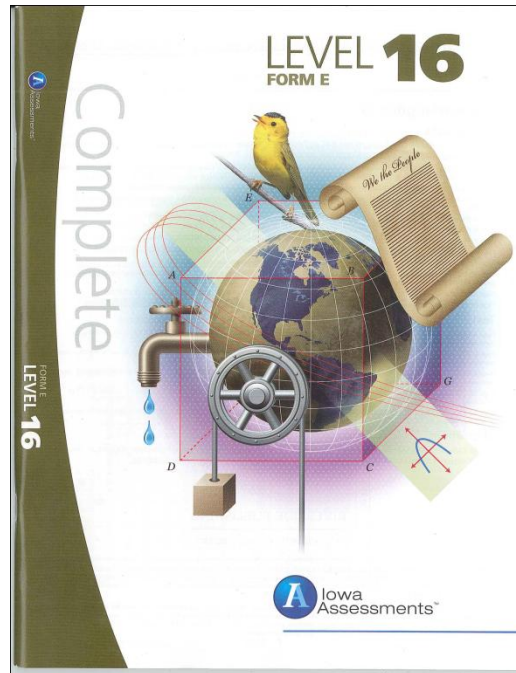
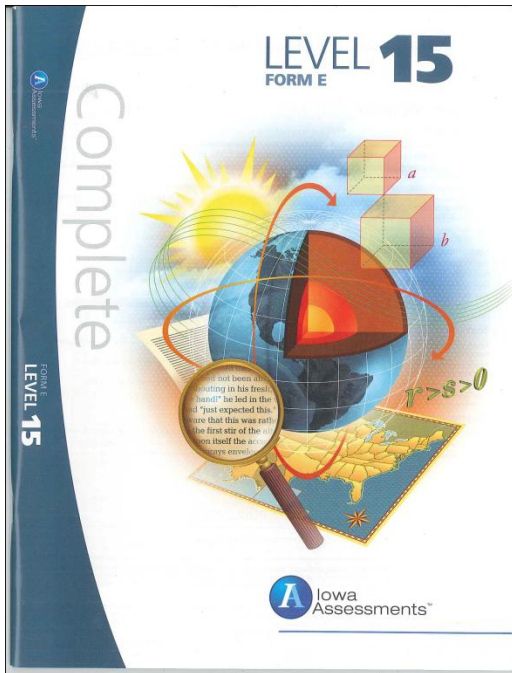


Iowa Testing Programs

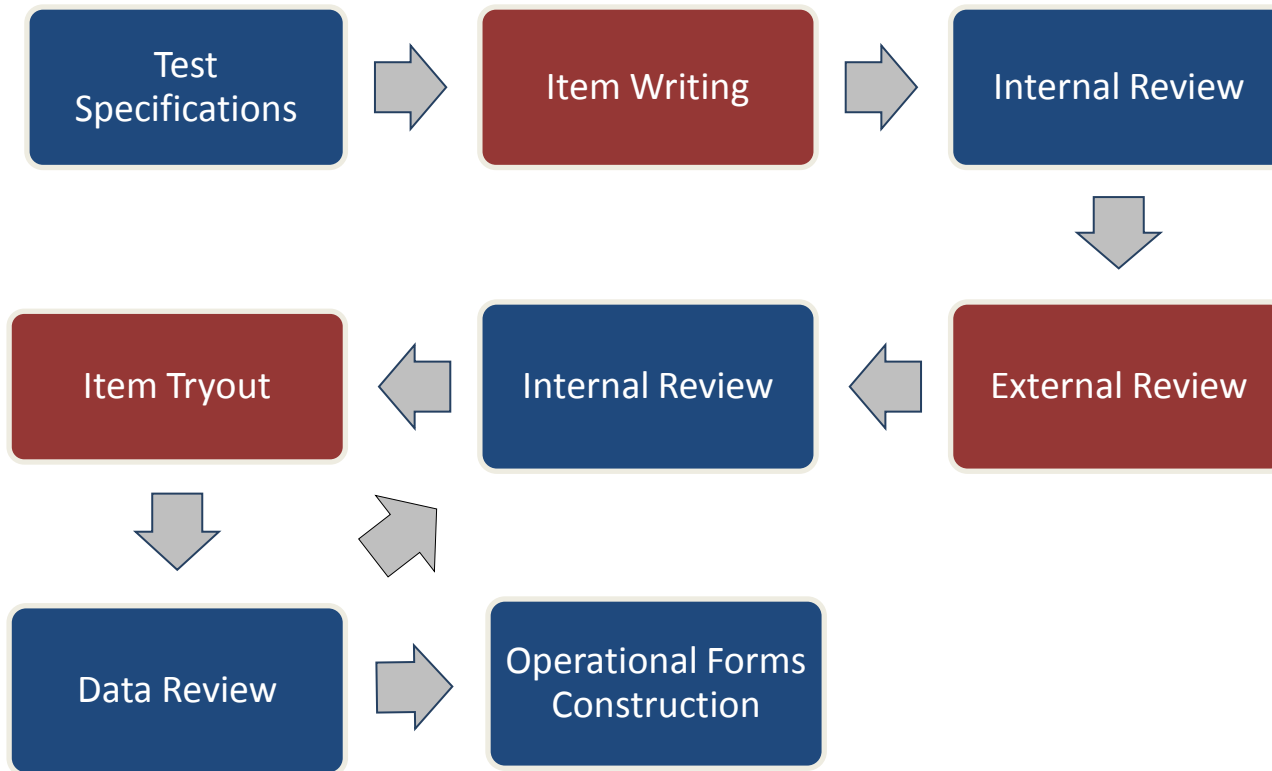
ITP Assessment Tools

- Math Interim Assessments: Grades 3 – 8
 - Administered online
- Constructed Response Supplements
 - Reading, Language Arts, Mathematics at Levels 9 – 17/18
 - Available free of charge in fall 2011
- Iowa Algebra Readiness Assessment (IARA)
 - Administered online
- Iowa End of Course Assessments (IEOC)
 - Administered online
 - Algebra I, Algebra II, Geometry, Matrix Algebra, Probability & Statistics, English Language Arts, Physical Science, Biology, Chemistry, U.S. History, U.S. Government

The Iowa Assessments™



Test Development



New Iowa Assessments™

- New forms
- All new items
- All items written and reviewed by Iowa educators
- All items field tested on Iowa students
- All items align to the Iowa Core

<http://www.corecurriculum.iowa.gov/>

Major Changes from Current Forms

All Levels

- New order of tests within the booklet
- Adjusted number of items and administration times
- New page layouts in full color

Levels 15 – 17/18

- Spelling and Sources of Information tests have been dropped

Administration Times: Levels 15 – 17/18

| Subject Area | Administration Time |
|--------------------|---------------------|
| Reading | 40 |
| Written Expression | 40 |
| Mathematics | 40 |
| Science | 40 |
| Social Studies | 40 |
| Vocabulary | 15 |
| Computation | 20 |

Mathematics Domains & Standards

Number Sense and Operations

- Represent, compare and order numbers
- Describe and apply properties of numbers
- Classify numbers by divisibility
- Demonstrate ways of performing operations
- Use place value and write numbers in standard, expanded and exponential form
- Estimate and round real numbers

Algebraic Patterns and Connections

- Use and interpret operational and relational symbols
- Solve equations/inequalities
- Use expressions and equations to model situations
- Explore numerical patterns
- Apply functional relationships

Data Analysis, Probability and Statistics

- Apply probability concepts and counting rules
- Understand and apply measures of central tendency and variability
- Interpret data and make predictions
- Understand sampling

Mathematics Domains & Standards (cont.)

Geometry

- Identify, classify and compare geometric figures
- Describe geometric properties, patterns, and relationships
- Apply concepts of perimeter, area and volume
- Estimate geometric measurements

Measurement

- Measure length/distance, time, temperature, money, weight, mass and volume
- Estimate measurements with appropriate precision
- Identify and use appropriate units of measurement and measurement tools
- Understand and apply rate

Mathematics Domains and Cognitive Levels

| Domain | Level 15 Total Items | Level 16 Total Items | Level 17/18 Total Items |
|--|----------------------|----------------------|-------------------------|
| Number Sense and Operations | 10 | 9 | 8 |
| Algebraic Patterns and Connections | 10 | 11 | 12 |
| Data Analysis, Probability, and Statistics | 6 | 7 | 8 |
| Geometry | 8 | 8 | 8 |
| Measurement | 6 | 5 | 4 |
| Total | 40 | 40 | 40 |

| Cognitive Levels of Items Above | Level 15 Total Items | Level 16 Total Items | Level 17/18 Total Items |
|---------------------------------|----------------------|----------------------|-------------------------|
| Essential Competencies | 3 | 3 | 4 |
| Conceptual Understanding | 27 | 28 | 28 |
| Extended Reasoning | 10 | 9 | 8 |

Cognitive Levels

- Essential Competencies: students recall information, facts, definitions; perform simple one-step procedure
- Conceptual Understanding: students make decisions of how to approach the problem; specify and explain relationships between facts, terms, properties, or operations; perform multiple-step procedure
- Extended Reasoning: students use reasoning, use planning, draw conclusions, or cite evidence to solve a problem; develop a strategy to connect and relate ideas to solve problems while using multiple-step procedures and a variety of skills

Core: Number and Quantities; Quantities – Reason quantitatively and use units to solve problems

A Measurement – Understand and apply rate
Cognitive Level – Extended reasoning

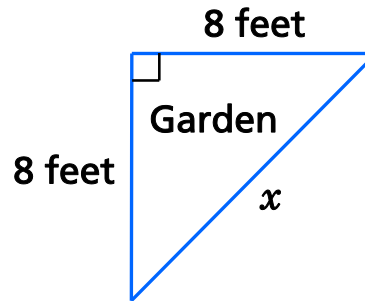
1 Chris and Sandy leave Sandy’s house at the same time and travel in opposite directions. After 4 hours they are 480 miles apart. Chris traveled 10 miles per hour (mph) faster than Sandy. What is Sandy’s average rate of speed?

- A 40 mph**
- B 45 mph**
- C 55 mph**
- D 60 mph**
- E 65 mph**

Core: Geometry; Similarity, Right Triangles, and Trigonometry – Define trigonometric ratios and solve problems involving right triangles

A Geometry – Describe geometric properties, patterns, and relationships
Cognitive Level – Conceptual understanding

- 2 Mrs. Price has planted a triangular flower garden in the corner of her yard as shown below.**



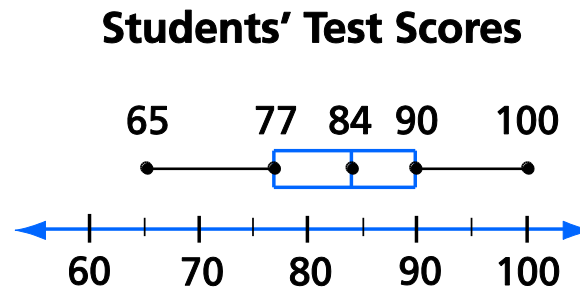
She needs to put a fence along the side of the garden labeled x . What length of fence is needed for that side of the garden?

- A** $4\sqrt{2}$ feet
- B** $8\sqrt{2}$ feet
- C** 16 feet
- D** 32 feet
- E** $32\sqrt{2}$ feet

Core: Statistics and Probability; Interpreting Categorical and Quantitative Data – Summarize, represent, and interpret data on a single count or measurement variable

**A Data Analysis, Probability, and Statistics – Make predictions and interpret data
Cognitive Level – Conceptual understanding**

3 The box-and-whisker plot below represents the 20 scores earned on a test.



No two students earned the same score on the test. How many students earned a score from 77 to 90?

- A 4**
- B 5**
- C 8**
- D 10**
- E 13**

Computation Domains

| Domain | Level 15 Total Items | Level 16 Total Items | Level 17/18 Total Items |
|-------------------------|----------------------|----------------------|-------------------------|
| Integers | 6 | 4 | 4 |
| Decimals/Percents | 8 | 8 | 8 |
| Fractions | 5 | 6 | 5 |
| Algebraic Manipulations | 11 | 12 | 13 |
| Total | 30 | 30 | 30 |

Cognitive levels are not defined within the mathematics computation tests.

Answer Folder Changes

- Colors are being used to help teachers more easily verify that the correct form is being used.
- The optional section for Tryout Items is now located in the interior of the answer folders. Use the adjacent “Other Information” box to grid in the Tryout Form number.

A blue-themed answer folder form with a large grid for marking answers. It includes sections for 'Other Information' and 'Tryout Items'.A gold-themed answer folder form with a large grid for marking answers. It includes sections for 'Other Information' and 'Tryout Items'.A red-themed answer folder form with a large grid for marking answers. It includes sections for 'Other Information' and 'Tryout Items'.



Calculator Use

- Calculators are **NOT ALLOWED** on the Computation Test.
- Calculators may be used on the Mathematics Test.
- The decision to use calculators should be made at the district level, and guided by aligning assessment with instruction.



Scratch paper

- Each student should have a supply of scratch paper for all testing sessions.
- Collect all scratch paper after each session.
- Destroy all used scratch paper.

Security

- Test Booklets are **SECURE** materials.
- **No** Booklets are to be retained at the district or school level.

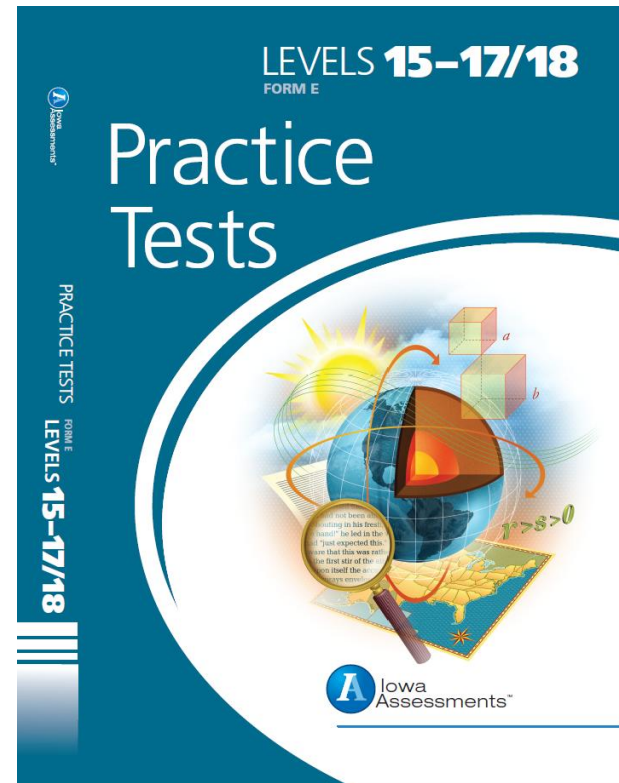
Security

For security reasons, tests may be viewed on only two occasions:

1. When students are taking an assessment
 - Order only enough materials to test your students.
2. When educators are reviewing Item Analysis Reports (Item Response Record)
 - Contact ITP for review copies.

Level 15 – 17/18 Practice Tests

- Reading
- Written Expression
- Mathematics
- Science
- Social Studies
- Vocabulary
- Computation



Details

- Presentation will be available on the Iowa Testing Programs website at <http://itp.education.uiowa.edu>.
 - Contact your testing coordinator if you need assistance accessing materials.
- A Frequently-Asked-Questions (FAQ) is posted on our website and will be updated frequently.
- Contact iowa-testing-programs@uiowa.edu with any additional questions.