# Pre-Formatted Reports: Benchmark Test Item Analysis - New Format

## Data Selections

**Institution(s):** All School Types,All Schools
**Benchmark Administration:** 09/03/14, 2014-2015 Baseline 8th Math
**Trend Profile:** 2014-2015
**Subject:** Mathematics
**Test Focus:** Mathematics
**Test Level:** 08
**Test Category:** District Benchmark
**Grade:** 08
**Enrollment:** Total for 2014-2015

Number of questions: 30
Number of test-taking students: 1048

## Student Responses

| Question - Type | Correct | | Incorrect | Most Common Mistake | | Point Value | Points Achieved / Possible | P-Value/ Item Mean | Discrimination |
|---|---|---|---|---|---|---|---|---|---|
| | Rate | Value | Total Rate | Rate | Value | | | | |
| 1 - Multiple Choice | 60% | C | 40% | 31% | A | 1 | 629 / 1048 | | |
| 2 - Multiple Choice | 26% | C | 74% | 27% | A | 1 | 271 / 1048 | | |
| 3 - Multiple Choice | 61% | B | 39% | 17% | A | 1 | 643 / 1048 | | |
| 4 - Multiple Choice | 49% | B | 51% | 23% | D | 1 | 512 / 1048 | | |
| 5 - Multiple Choice | 40% | A | 60% | 28% | C | 1 | 421 / 1048 | | |
| 6 - Multiple Choice | 51% | A | 49% | 22% | B | 1 | 538 / 1048 | | |
| 7 - Multiple Choice | 49% | B | 51% | 25% | D | 1 | 515 / 1048 | | |
| 8 - Multiple Choice | 76% | C | 24% | 12% | D | 1 | 792 / 1048 | | |
| 9 - Multiple Choice | 37% | C | 63% | 27% | A | 1 | 391 / 1048 | | |
| 10 - Multiple Choice | 40% | A | 60% | 32% | C | 1 | 424 / 1048 | | |
| 11 - Multiple Choice | 48% | B | 52% | 23% | C | 1 | 506 / 1048 | | |
| 12 - Multiple Choice | 55% | B | 45% | 25% | A | 1 | 574 / 1048 | | |
| 13 - Multiple Choice | 48% | C | 52% | 21% | B | 1 | 502 / 1048 | | |
| 14 - Multiple Choice | 39% | C | 61% | 48% | D | 1 | 412 / 1048 | | |
| 15 - Multiple Choice | 62% | C | 38% | 16% | B | 1 | 653 / 1048 | | |
| 16 - Multiple Choice | 54% | D | 46% | 26% | B | 1 | 567 / 1048 | | |
| 17 - Multiple Choice | 55% | C | 45% | 25% | B | 1 | 577 / 1048 | | |
| 18 - Multiple Choice | 43% | A | 57% | 27% | B | 1 | 455 / 1048 | | |
| 19 - Multiple Choice | 25% | B | 75% | 48% | C | 1 | 267 / 1048 | | |
| 20 - Multiple Choice | 31% | D | 69% | 41% | A | 1 | 329 / 1048 | | |

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|---|---|---|---|---|---|---|---|---|---|
| 21 - Multiple Choice | 56% | C | 44% | 16% | B | 1 | 591 / 1048 | | |
| 22 - Multiple Choice | 38% | C | 62% | 35% | A | 1 | 399 / 1048 | | |
| 23 - Multiple Choice | 48% | D | 52% | 26% | B | 1 | 501 / 1048 | | |
| 24 - Multiple Choice | 41% | A | 59% | 23% | B | 1 | 427 / 1048 | | |
| 25 - Multiple Choice | 32% | C | 68% | 26% | A | 1 | 334 / 1048 | | |
| 26 - Multiple Choice | 35% | D | 65% | 36% | C | 1 | 372 / 1048 | | |
| 27 - Multiple Choice | 29% | A | 71% | 30% | B | 1 | 300 / 1048 | | |
| 28 - Multiple Choice | 53% | B | 47% | 20% | C | 1 | 554 / 1048 | | |
| 29 - Multiple Choice | 53% | A | 47% | 26% | C | 1 | 553 / 1048 | | |
| 30 - Multiple Choice | 37% | A | 63% | 31% | C | 1 | 384 / 1048 | | |
| **Summary** | **46%** | | **54%** | | | | **480 / 1048** | | |

P-value represents an item's difficulty as evaluated by dividing the total number of correct responses by the total number of students tested. P-value is calculated for true/false, multiple choice, gridded or hot spot-single response items.

Item Mean is the average score for student responses to an open response question or to a multi-part question. Item Mean is calculated for inline response, matching or hot spot-multiple selections items.

Discrimination or Item Total Score Correlation is the correlation between the question score and the overall test score and indicates the extent to which success on an item corresponds to success on the test.

**Standards Alignment to Common Core State Standards**

| Question | ID | Standard Description |
|---|---|---|
| **1 - Multiple Choice** | **CCSS.Math.Content.8.NS.A.2** | Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., pi²). For example, by truncating the decimal expansion of the square root of 2, show that the square root of 2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations. |
| **2 - Multiple Choice** | **CCSS.Math.Content.7.EE.B.4a** | Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? |
| **3 - Multiple Choice** | **CCSS.Math.Content.7.NS.A.1d** | Apply properties of operations as strategies to add and subtract rational numbers. |
| **4 - Multiple Choice** | **CCSS.Math.Content.7.G.B.4** | Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. |
| **5 - Multiple Choice** | **CCSS.Math.Content.7.EE.B.4** | Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. |
| **6 - Multiple Choice** | **CCSS.Math.Content.7.EE.A.1** | Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. |
| **7 - Multiple Choice** | **CCSS.Math.Content.7.G.A.1** | Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. |

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| **8 - Multiple Choice** | **CCSS.Math.Content.7.G.B.4** | Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. |
| **9 - Multiple Choice** | **CCSS.Math.Content.7.NS** | The Number System |
| **10 - Multiple Choice** | **CCSS.Math.Content.7.G.A.1** | Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. |
| **11 - Multiple Choice** | **CCSS.Math.Content.7.NS.A.2a** | Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. |
| **12 - Multiple Choice** | **CCSS.Math.Content.8.EE.A.1** | Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times (3$ to the –5 power) = (3 to the –3 power) = $1/3^3 = 1/27$. |
| **13 - Multiple Choice** | **CCSS.Math.Content.7.NS.A.2** | Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. |
| **14 - Multiple Choice** | **CCSS.Math.Content.7.EE.A.2** | Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05." |
| **15 - Multiple Choice** | **CCSS.Math.Content.7.EE.A.2** | Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05." |
| **16 - Multiple Choice** | **CCSS.Math.Content.7.G.A.1** | Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. |
| **17 - Multiple Choice** | **CCSS.Math.Content.7.RP.A.3** | Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. |
| **18 - Multiple Choice** | **CCSS.Math.Content.7.NS.A.1** | Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. |
| **19 - Multiple Choice** | **CCSS.Math.Content.7.G.B.5** | Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. |
| **20 - Multiple Choice** | **CCSS.Math.Content.7.G.A.1** | Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. |
| **21 - Multiple Choice** | **CCSS.Math.Content.7.NS.A.1** | Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. |
| **22 - Multiple Choice** | **CCSS.Math.Content.7.RP.A.1** | Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour. |
| **23 - Multiple Choice** | **CCSS.Math.Content.7.RP.A.2** | Recognize and represent proportional relationships between quantities. |
| **24 - Multiple Choice** | **CCSS.Math.Content.7.RP.A.3** | Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. |
| **25 - Multiple Choice** | **CCSS.Math.Content.7.EE.B.4** | Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. |

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| **26 - Multiple Choice** | **CCSS.Math.Content.7.G.B.6** | Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. |
| **27 - Multiple Choice** | **CCSS.Math.Content.7.G.B.4** | Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. |
| **28 - Multiple Choice** | **CCSS.Math.Content.7.RP.A.2** | Recognize and represent proportional relationships between quantities. |
| **29 - Multiple Choice** | **CCSS.Math.Content.7.RP.A.3** | Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. |
| **30 - Multiple Choice** | **CCSS.Math.Content.7.RP.A.3** | Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. |