

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

Data Selections

Institution(s): Elementary School, All Schools
Benchmark Administration: 03/24/15, 2014-2015 BA2 5th Math
Trend Profile: 2014-2015
Subject: Mathematics
Test Focus: All Test Focuses
Test Level: 05
Test Category: District Benchmark
Grade: 05
Enrollment: Current

Number of questions: 40
 Number of test-taking students: 1310

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	85%	D	15%	11%	A	1	1115 / 1310	0.85	0.45
2 - Multiple Choice	70%	A	30%	12%	B	1	917 / 1310	0.75	0.49
3 - Multiple Choice	71%	B	29%	13%	A	1	931 / 1310	0.79	0.40
4 - Multiple Choice	36%	B	64%	46%	D	1	467 / 1310	0.40	0.25
5 - Multiple Choice	34%	B	66%	46%	C	1	447 / 1310	0.39	0.53
6 - Multiple Choice	46%	C	54%	40%	B	1	599 / 1310	0.50	0.55
7 - Multiple Choice	79%	C	21%	11%	D	1	1031 / 1310	0.83	0.38
8 - Multiple Choice	70%	D	30%	21%	C	1	915 / 1310	0.72	0.27
9 - Multiple Choice	71%	A	29%	15%	C	1	924 / 1310	0.75	0.48
10 - Multiple Choice	86%	C	14%	9%	A	1	1124 / 1310	0.88	0.48
11 - Multiple Choice	56%	D	44%	22%	C	1	733 / 1310	0.61	0.45
12 - Multiple Choice	92%	B	8%	3%	A	1	1199 / 1310	0.93	0.28
13 - Multiple Choice	83%	A	17%	10%	D	1	1085 / 1310	0.86	0.33
14 - Multiple Choice	78%	D	22%	10%	A	1	1016 / 1310	0.84	0.40
15 - Multiple Choice	84%	B	16%	8%	C	1	1101 / 1310	0.88	0.37
16 - Multiple Choice	67%	B	33%	15%	C	1	880 / 1310	0.72	0.45

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17 - Multiple Choice	88%	C	12%	6%	A	1	1147 / 1310	0.90	0.41
18 - Multiple Choice	63%	C	37%	17%	A	1	827 / 1310	0.71	0.50
19 - Multiple Choice	28%	A	72%	32%	D	1	363 / 1310	0.28	0.22
20 - Multiple Choice	89%	D	11%	4%	A	1	1170 / 1310	0.91	0.30
21 - Multiple Choice	77%	C	23%	10%	A	1	1010 / 1310	0.84	0.39
22 - Multiple Choice	53%	A	47%	27%	B	1	696 / 1310	0.54	0.16
23 - Multiple Choice	53%	A	47%	32%	C	1	689 / 1310	0.56	0.36
24 - Multiple Choice	56%	C	44%	21%	B	1	733 / 1310	0.56	0.53
25 - Multiple Choice	66%	C	34%	13%	B	1	866 / 1310	0.72	0.41
26 - Multiple Choice	75%	D	25%	11%	A	1	986 / 1310	0.81	0.44
27 - Multiple Choice	70%	B	30%	20%	A	1	923 / 1310	0.75	0.38
28 - Multiple Choice	89%	A	11%	5%	D	1	1165 / 1310	0.89	0.41
29 - Multiple Choice	50%	D	50%	21%	B	1	655 / 1310	0.55	0.40
30 - Multiple Choice	64%	D	36%	24%	B	1	837 / 1310	0.64	0.62
31 - Multiple Choice	70%	A	30%	16%	B	1	915 / 1310	0.74	0.52
32 - Multiple Choice	63%	D	37%	14%	B	1	831 / 1310	0.65	0.25
33 - Multiple Choice	49%	A	51%	29%	D	1	636 / 1310	0.56	0.39
34 - Multiple Choice	77%	C	23%	13%	D	1	1012 / 1310	0.84	0.32
35 - Multiple Choice	43%	B	57%	40%	A	1	561 / 1310	0.49	0.50
36 - Multiple Choice	56%	C	44%	18%	D	1	738 / 1310	0.62	0.48
37 - Multiple Choice	53%	C	47%	29%	B	1	697 / 1310	0.59	0.58
38 - Multiple Choice	47%	B	53%	26%	A	1	618 / 1310	0.52	0.59
39 - Multiple Choice	54%	A	46%	41%	B	1	711 / 1310	0.59	0.56
40 - Multiple Choice	58%	A	42%	37%	B	1	764 / 1310	0.63	0.53
Summary	65%		35%				851 / 1310		

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.5.NF.A.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)
2 - Multiple Choice	CCSS.Math.Content.5.NF.B.3	Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?
3 - Multiple Choice	CCSS.Math.Content.5.NF.A.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.
4 - Multiple Choice	CCSS.Math.Content.5.NF.B.4a	Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)
5 - Multiple Choice	CCSS.Math.Content.5.NF.A.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)
6 - Multiple Choice	CCSS.Math.Content.5.NF.B.4b	Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
7 - Multiple Choice	CCSS.Math.Content.5.NBT.A.4	Use place value understanding to round decimals to any place.
8 - Multiple Choice	CCSS.Math.Content.5.NBT.A.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
9 - Multiple Choice	CCSS.Math.Content.5.NF.B.5b	Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
10 - Multiple Choice	CCSS.Math.Content.5.NF.A.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.
11 - Multiple Choice	CCSS.Math.Content.5.NF.B.3	Interpret a fraction as division of the numerator by the denominator (a/b

= $a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret $\frac{3}{4}$ as the result of dividing 3 by 4, noting that $\frac{3}{4}$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $\frac{3}{4}$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?

12 - Multiple Choice CCSS.Math.Content.5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

13 - Multiple Choice CCSS.Math.Content.5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties.

14 - Multiple Choice CCSS.Math.Content.5.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.

15 - Multiple Choice CCSS.Math.Content.5.NF.B.5b Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $\frac{a}{b} = \frac{(n \times a)}{(n \times b)}$ to the effect of multiplying $\frac{a}{b}$ by 1.

16 - Multiple Choice CCSS.Math.Content.5.NF.B.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

17 - Multiple Choice CCSS.Math.Content.5.NF.B.5b Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $\frac{a}{b} = \frac{(n \times a)}{(n \times b)}$ to the effect of multiplying $\frac{a}{b}$ by 1.

18 - Multiple Choice CCSS.Math.Content.5.NF.B.5a Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

19 - Multiple Choice CCSS.Math.Content.5.OA.A.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

20 - Multiple Choice CCSS.Math.Content.5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

21 - Multiple Choice CCSS.Math.Content.5.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.

22 - Multiple Choice CCSS.Math.Content.5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

23 - Multiple Choice CCSS.Math.Content.5.NF.B.5a Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated

multiplication.

24 - Multiple Choice CCSS.Math.Content.5.NF.B.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

25 - Multiple Choice CCSS.Math.Content.5.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.

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27 - Multiple Choice CCSS.Math.Content.5.OA.A.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

28 - Multiple Choice CCSS.Math.Content.5.NF.B.4a Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)

29 - Multiple Choice CCSS.Math.Content.5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.

30 - Multiple Choice CCSS.Math.Content.5.NF.B.4b Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

31 - Multiple Choice CCSS.Math.Content.5.NF.B.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

32 - Multiple Choice CCSS.Math.Content.5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

33 - Multiple Choice CCSS.Math.Content.5.OA.A.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

34 - Multiple Choice CCSS.Math.Content.5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.

35 - Multiple Choice CCSS.Math.Content.5.NF.B.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

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37 - Multiple Choice CCSS.Math.Content.5.NF.A.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.

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unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

39 - Multiple Choice CCSS.Math.Content.5.NF.B.4a Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)

40 - Multiple Choice CCSS.Math.Content.5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)
