

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 3rd Math
Trend Profile: 2014-2015
Subject: Mathematics
Test Focus: All Test Focuses
Test Level: 03
Test Category: District Benchmark
Grade: 03
Enrollment: Current

Number of questions: 40
 Number of test-taking students: 1486

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	95%	B	5%	3%	A	1	1408 / 1486	0.97	0.22
2 - Multiple Choice	74%	A	26%	14%	D	1	1107 / 1486	0.79	0.38
3 - Multiple Choice	70%	C	30%	17%	A	1	1035 / 1486	0.74	0.45
4 - Multiple Choice	86%	B	14%	5%	C	1	1276 / 1486	0.91	0.48
5 - Multiple Choice	76%	B	24%	11%	C	1	1127 / 1486	0.79	0.31
6 - Multiple Choice	87%	B	13%	8%	A	1	1295 / 1486	0.89	0.41
7 - Multiple Choice	55%	D	45%	15%	C	1	824 / 1486	0.66	0.52
8 - Multiple Choice	80%	B	20%	7%	D	1	1191 / 1486	0.85	0.41
9 - Multiple Choice	93%	C	7%	3%	B	1	1375 / 1486	0.95	0.28
10 - Multiple Choice	92%	A	8%	4%	D	1	1363 / 1486	0.94	0.26
11 - Multiple Choice	62%	B	38%	17%	A	1	928 / 1486	0.71	0.55
12 - Multiple Choice	58%	B	42%	25%	C	1	860 / 1486	0.63	0.43
13 - Multiple Choice	77%	D	23%	8%	C	1	1149 / 1486	0.84	0.41
14 - Multiple Choice	34%	B	66%	42%	C	1	511 / 1486	0.36	0.33
15 - Multiple Choice	84%	A	16%	6%	B	1	1249 /	0.88	0.39

NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION Reformatted Reports

						1486			
16 - Multiple Choice	66%	B	34%	17%	C	1	988 / 1486	0.69	0.40
17 - Multiple Choice	63%	B	37%	19%	A	1	939 / 1486	0.68	0.56
18 - Multiple Choice	61%	A	39%	25%	B	1	900 / 1486	0.70	0.58
19 - Multiple Choice	50%	D	50%	29%	A	1	738 / 1486	0.54	0.46
20 - Multiple Choice	40%	D	60%	40%	C	1	592 / 1486	0.44	0.34
21 - Multiple Choice	38%	D	62%	50%	C	1	568 / 1486	0.46	0.51
22 - Multiple Choice	67%	C	33%	14%	A	1	995 / 1486	0.72	0.48
23 - Multiple Choice	60%	D	40%	18%	B	1	897 / 1486	0.63	0.55
24 - Multiple Choice	51%	C	49%	17%	D	1	757 / 1486	0.58	0.55
25 - Multiple Choice	84%	A	16%	9%	B	1	1248 / 1486	0.87	0.33
26 - Multiple Choice	57%	C	43%	38%	A	1	841 / 1486	0.63	0.38
27 - Multiple Choice	92%	B	8%	5%	A	1	1366 / 1486	0.95	0.28
28 - Multiple Choice	75%	B	25%	14%	A	1	1119 / 1486	0.82	0.45
29 - Multiple Choice	63%	C	37%	16%	B	1	931 / 1486	0.66	0.44
30 - Multiple Choice	87%	A	13%	5%	B	1	1299 / 1486	0.92	0.34
31 - Multiple Choice	69%	A	31%	13%	B	1	1021 / 1486	0.76	0.48
32 - Multiple Choice	39%	C	61%	29%	B	1	586 / 1486	0.46	0.36
33 - Multiple Choice	85%	B	15%	7%	A	1	1260 / 1486	0.88	0.44
34 - Multiple Choice	73%	D	27%	16%	B	1	1084 / 1486	0.79	0.52
35 - Multiple Choice	81%	D	19%	12%	C	1	1202 / 1486	0.87	0.48
36 - Multiple Choice	72%	C	28%	12%	A	1	1066 / 1486	0.78	0.52
37 - Multiple Choice	26%	C	74%	42%	D	1	393 / 1486	0.31	0.29
38 - Multiple Choice	69%	A	31%	20%	C	1	1018 / 1486	0.75	0.55
39 - Multiple Choice	52%	B	48%	29%	C	1	778 / 1486	0.57	0.37
40 - Multiple Choice	44%	A	56%	24%	C	1	658 / 1486	0.50	0.45
Summary	67%		33%				999 / 1486		

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.3.NBT.A.1	Use place value understanding to round whole numbers to the nearest 10 or 100.
2 - Multiple Choice	CCSS.Math.Content.3.NBT.A.2	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3 - Multiple Choice	CCSS.Math.Content.3.OA.D.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
4 - Multiple Choice	CCSS.Math.Content.3.OA.D.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.
5 - Multiple Choice	CCSS.Math.Content.3.OA.D.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
6 - Multiple Choice	CCSS.Math.Content.3.NF.A.1	Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.
7 - Multiple Choice	CCSS.Math.Content.3.MD.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.
8 - Multiple Choice	CCSS.Math.Content.3.MD.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.
9 - Multiple Choice	CCSS.Math.Content.3.OA.B.6	Understand division as an unknown-factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.
10 - Multiple Choice	CCSS.Math.Content.3.OA.A.1	Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5×7 .
11 - Multiple Choice	CCSS.Math.Content.3.OA.D.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. This standard is limited to

problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

12 - Multiple Choice CCSS.Math.Content.3.OA.B.5 Apply properties of operations as strategies to multiply and divide. Students need not use formal terms for these properties. Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

13 - Multiple Choice CCSS.Math.Content.3.OA.D.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

14 - Multiple Choice CCSS.Math.Content.3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.

15 - Multiple Choice CCSS.Math.Content.3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

16 - Multiple Choice CCSS.Math.Content.3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

17 - Multiple Choice CCSS.Math.Content.3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

18 - Multiple Choice CCSS.Math.Content.3.OA.A.1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5×7 .

19 - Multiple Choice CCSS.Math.Content.3.OA.B.5 Apply properties of operations as strategies to multiply and divide. Students need not use formal terms for these properties. Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

20 - Multiple Choice CCSS.Math.Content.3.OA.B.5 Apply properties of operations as strategies to multiply and divide. Students need not use formal terms for these properties. Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

21 - Multiple Choice CCSS.Math.Content.3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.

22 - Multiple Choice CCSS.Math.Content.3.OA.A.2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be

expressed as $56 \div 8$.

23 - Multiple Choice CCSS.Math.Content.3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = _ \div 3$, $6 \times 6 = ?$.

24 - Multiple Choice CCSS.Math.Content.3.OA.D.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.

25 - Multiple Choice CCSS.Math.Content.3.OA.A.1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5×7 .

26 - Multiple Choice CCSS.Math.Content.3.NF.A.1 Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.

27 - Multiple Choice CCSS.Math.Content.3.G.A.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $1/4$ of the area of the shape.

28 - Multiple Choice CCSS.Math.Content.3.OA.D.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.

29 - Multiple Choice CCSS.Math.Content.3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

30 - Multiple Choice CCSS.Math.Content.3.G.A.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $1/4$ of the area of the shape.

31 - Multiple Choice CCSS.Math.Content.3.NBT.A.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.

32 - Multiple Choice CCSS.Math.Content.3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

33 - Multiple Choice CCSS.Math.Content.3.OA.A.2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.

34 - Multiple Choice CCSS.Math.Content.3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

35 - Multiple Choice CCSS.Math.Content.3.OA.A.2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.

36 - Multiple Choice CCSS.Math.Content.3.NBT.A.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.

37 - Multiple Choice CCSS.Math.Content.3.OA.D.8 Solve two-step word problems using the four operations. Represent these

problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

38 - Multiple Choice CCSS.Math.Content.3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

39 - Multiple Choice CCSS.Math.Content.3.OA.B.6 Understand division as an unknown-factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.

40 - Multiple Choice CCSS.Math.Content.3.OA.B.5 Apply properties of operations as strategies to multiply and divide. Students need not use formal terms for these properties. Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)
