

NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION

Pre-formatted Reports

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

Data Selections

Institution(s): All School Types, All Schools

Benchmark Administration: 10/28/14, 2014-15 BA1 Math I MS Calculator Active

Trend Profile: 2014-2015

Subject: Mathematics

Test Focus: Mathematics

Test Level: All Benchmark Test Levels

Test Category: District Benchmark

Grade: All Grade Levels

Enrollment: Current

Number of questions: 24

Number of test-taking students: 433

Student Responses

Question - Type	Correct		Incorrect	Most Common Mistake		Point Value	Points Achieved / Possible	P-Value/Item Mean	Discrimination
	Rate	Value		Total Rate	Rate				
1 - Multiple Choice	76%	B	24%	11%	C	1	331 / 433	0.76	0.45
2 - Multiple Choice	89%	B	11%	5%	A	1	385 / 433	0.89	0.27
3 - Multiple Choice	48%	B	52%	36%	C	1	206 / 433	0.47	0.27
4 - Multiple Choice	45%	B	55%	21%	A	1	197 / 433	0.45	0.24
5 - Multiple Choice	64%	B	36%	31%	D	1	276 / 433	0.64	0.54
6 - Multiple Choice	85%	D	15%	7%	B	1	368 / 433	0.85	0.30
7 - Multiple Choice	38%	B	62%	35%	C	1	165 / 433	0.38	0.42
8 - Multiple Choice	17%	A	83%	47%	B	1	75 / 433	0.17	0.01
9 - Multiple Choice	42%	C	58%	33%	D	1	183 / 433	0.42	0.41
10 - Multiple Choice	29%	A	71%	30%	D	1	124 / 433	0.28	0.27
11 - Multiple Choice	78%	A	22%	10%	C	1	339 / 433	0.78	0.40
12 - Multiple Choice	21%	A	79%	38%	C	1	93 / 433	0.22	0.04
13 - Multiple Choice	26%	C	74%	44%	D	1	111 / 433	0.25	0.31
14 - Multiple Choice	56%	B	44%	22%	A	1	244 / 433	0.56	0.39
15 - Multiple Choice	31%	D	69%	33%	B	1	135 / 433	0.31	0.22
16 - Multiple Choice	60%	C	40%	20%	A	1	260 / 433	0.60	0.43
17 - Multiple Choice	86%	B	14%	8%	C	1	372 / 433	0.86	0.34
18 - Multiple Choice	74%	B	26%	14%	A	1	319 / 433	0.74	0.37
19 - Multiple Choice	27%	C	73%	29%	B	1	118 / 433	0.27	0.21
20 - Multiple Choice	63%	C	37%	24%	B	1	273 / 433	0.63	0.27

For additional reporting and analysis in School and District Data, please visit <https://homebase.schoolnet.com/490>

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Report run by: Eller, Sally on 11/18/2014

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21 - Multiple Choice	64%	B	36%	13%	A	1	275 / 433	0.63	0.42
22 - Multiple Choice	36%	C	64%	24%	A	1	155 / 433	0.36	0.19
23 - Multiple Choice	41%	A	59%	28%	C	1	176 / 433	0.41	0.37
24 - Multiple Choice	35%	D	65%	28%	B	1	150 / 433	0.34	0.52
Summary	51%		49%				222 / 433		

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 NC Standards

Question	ID	Standard Description
1 - Multiple Choice	CCSS.Math.Content.8.G.A.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
2 - Multiple Choice	CCSS.Math.Content.8.SP.A.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
3 - Multiple Choice	CCSS.Math.Content.8.G.A.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
4 - Multiple Choice	CCSS.Math.Content.8.G.B.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
5 - 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., π^2). 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.
6 - Multiple Choice	CCSS.Math.Content.HSS-ID.A.1	Represent data with plots on the real number line (dot plots, histograms, and box plots).
7 - Multiple Choice	CCSS.Math.Content.HSF-IF.B.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
8 - Multiple Choice	CCSS.Math.Content.8.F.A.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. Function notation is not required in Grade 8.
9 - Multiple Choice	CCSS.Math.Content.8.EE.C.7b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
10 - Multiple Choice	CCSS.Math.Content.8.G.C.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
11 - Multiple Choice	CCSS.Math.Content.HSF-BF.A.2	Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.
12 - Multiple Choice	CCSS.Math.Content.HSS-ID.A.2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard

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deviation) of two or more different data sets.

- 13 - Multiple Choice CCSS.Math.Content.HSF-** For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.

- 14 - Multiple Choice CCSS.Math.Content.8.F.A.3** Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points $(1,1)$, $(2,4)$ and $(3,9)$, which are not on a straight line.

- 15 - Multiple Choice CCSS.Math.Content.HSS-** Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

- 16 - Multiple Choice CCSS.Math.Content.8.EE.A.3** Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as $3 \times (10$ to the 8th power $)$ and the population of the world as $7 \times (10$ to the 9th power $)$, and determine that the world population is more than 20 times larger.

- 17 - Multiple Choice CCSS.Math.Content.HSF-** Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

- 18 - Multiple Choice CCSS.Math.Content.HSS-** Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

- 19 - Multiple Choice CCSS.Math.Content.HSS-** Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

- 20 - Multiple Choice CCSS.Math.Content.HSS-** Distinguish between correlation and causation.

- 21 - Multiple Choice CCSS.Math.Content.HSF-** For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.

- 22 - Multiple Choice CCSS.Math.Content.HSF-** Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.

- 23 - Multiple Choice CCSS.Math.Content.HSA-** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

- 24 - Multiple Choice CCSS.Math.Content.HSA-** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.