

Benchmark Assessment Test 2005
Math Grade 5 Test 1
Interpretive Guide

STRAND A

MAA122

Compare relative size and order of whole numbers, fractions, decimals and percents

Students need assistance with:	Comparing common fractions with unlike denominators
Sample 1	Which fraction is the greatest ? 1/2 3/6 2/8 5/6
Common Error	Choosing 2/8 or 1/2 (the fractions with the greatest or smallest denominators), rather than 5/6
Sample 2	Which of the following lists the fractions from greatest to least ? A. 1/2, 1/3, 1/4, 1/5 B. 1/5, 1/4, 1/3, 1/2
Common Error	Choosing B (greatest denominator or least to greatest) rather than A

Students need assistance with:	Comparing common fractions, decimals, and percents
Sample	Which of the following has the least value? 10% 2/10 50% 1/4
Common Error	Choosing 1/4 rather than 10%

MAA124

Identify equivalent forms of whole numbers, fractions, mixed numbers, decimals, and percents

Students need assistance with:	Finding equivalent percents for common fractions														
Sample 1	What percent of the cars are red? <div style="text-align: center;"> <table border="1" style="margin: auto;"> <thead> <tr> <th colspan="2">CAR COLORS IN PARKING LOT</th> </tr> <tr> <th>Color</th> <th>Number of Cars</th> </tr> </thead> <tbody> <tr> <td>White</td> <td style="text-align: center;">8</td> </tr> <tr> <td>Black</td> <td style="text-align: center;">5</td> </tr> <tr> <td>Blue</td> <td style="text-align: center;">4</td> </tr> <tr> <td>Red</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Total</td> <td style="text-align: center;">20</td> </tr> </tbody> </table> </div>	CAR COLORS IN PARKING LOT		Color	Number of Cars	White	8	Black	5	Blue	4	Red	3	Total	20
CAR COLORS IN PARKING LOT															
Color	Number of Cars														
White	8														
Black	5														
Blue	4														
Red	3														
Total	20														
Common Error	Choosing 3% rather than 15%														
Sample 2	Stacy has done 3/4 of her homework. What percent is equal to 3/4?														
Common Error	Choosing 12% (3x4), 30%, or 40% rather than 75%														

Students need assistance with:	Identifying equivalent forms of decimals and fractions
Sample	Jake walks 1/4 of a mile to school. Which has a value equal to 1/4?
Common Error	Choosing 0.14 rather than 0.25

Students need assistance with:	Identifying equivalent forms of fractions
Sample	Jasmine had 8 candy hearts. She gave 2/8 of her hearts to a friend. Which fraction is equal to 2/8?
Common Error	Choosing 8/2 (inverse) rather than 1/4

MAA221

Interpret the place value of numbers, identify the digit having a given place value, compare the value of numbers, or round whole numbers

Students need assistance with:	Applying the concept of place value
Sample	Using each digit only once, which of the following is the largest number that can be made using the digits 3, 1, 7, and 5 putting the 7 in the tens place?
Common Error	Choosing 5731 rather than 5371

MAA321

Identify the appropriate operation for a stated effect, the effect of an operation, or the relationship between operations (including number properties)

Students need assistance with:	Identifying appropriate operations and the effects of operations
Sample 1	Which operation should be used in the box to get the smallest result? $8 \square 4$
Common Error	Choosing “-” rather than “÷”
Sample 2	Eduardo’s mother took a trip to Canada in 1968. Which operation would be best to find how many years ago her trip was from the year 2004?
Common Error	Choosing addition rather than subtraction

Students need assistance with:	The use of the distributive property of multiplication over addition
Sample	Which of the following is equal to $8 \times (2 + 3)$? A. $(8 \times 2) + (8 \times 3)$ B. $8 + (2 \times 3)$ C. $(8 \times 2) + 3$ D. $(8 + 2) \times (8 + 3)$
Common Error	Choosing B or C rather than $(8 \times 2) + (8 \times 3)$

MAA322

Identify an appropriate expression or number sentence to solve a problem

Students need assistance with:	Identifying an expression that represents a given whole being distributed into a number of equal groups as division.
Sample	Sam and Sara have 48 cupcakes to be placed equally on 3 trays. Which expression should be used to find how many cupcakes should go on each tray?
Common Error	Choosing 48×3 rather than $48 \div 3$

MAA323

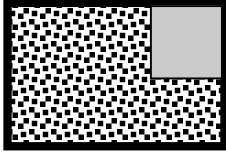
Solve real-world problems

Students need assistance with:	Solving problems requiring two operations
Sample	Katrina rides her bike 100 miles a week. She has ridden her bike twice this week, 12 miles each time. How many more miles does she need to ride this week?
Common Error	Choosing 88 (subtracting only one 12) rather than 76

Students need assistance with:	Solving problems requiring division
Sample	Students collected 91 cans for a food drive. They packed the same number of cans in each of 7 boxes. How many cans are in each box?
Common Error	Choosing 12 rather than 13

MAA421

Estimate and/or justify estimates in a real-world problem situation

Students need assistance with:	Using a benchmark number that shows the value of a portion to estimate the value of the whole
Sample	The rectangle below is filled with dots. The shaded part covers 98 dots. About how many dots are in the whole rectangle? 
Common Error	Choosing 100 dots (only rounding the given part) or 400 (finding the wrong number of equal portions) rather than 600

MAA521

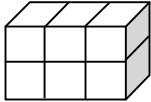
Recognize prime or composite numbers, prime factorization of numbers, greatest common factors, least common multiples, and rules of divisibility

Students need assistance with:	Identifying the prime factorization of a number
Sample	Which is the prime factorization of 42?
Common Error	Choosing 2×21 or 3×14 rather than $2 \times 3 \times 7$

Students need assistance with:	Recognizing prime and composite numbers
Sample	What do the following numbers have in common? 4, 6, 8, 9, 10
Common Error	Choosing “They are all even.” or “They are all prime.” rather than “They are all composite.”

STRAND B**MAB122**

Solve real-world measurement problems and/or identify angles or their measures

Students need assistance with:	Determining the volume of a rectangular prism
Sample	What is the volume of the figure below?  Volume = length x width x height
Common Error	Choosing any distractor rather than 6 cubic units

MAB221

Solve problems by calculating and/or comparing measurable characteristics involving conversions within systems

Students need assistance with:	Comparing measurements in different units										
Sample	Which tree is the second tallest? TREE HEIGHTS <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Tree</th> <th>Heights</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>580 centimeters</td> </tr> <tr> <td>2</td> <td>770 centimeters</td> </tr> <tr> <td>3</td> <td>4.6 meters</td> </tr> <tr> <td>4</td> <td>6.7 meters</td> </tr> </tbody> </table>	Tree	Heights	1	580 centimeters	2	770 centimeters	3	4.6 meters	4	6.7 meters
Tree	Heights										
1	580 centimeters										
2	770 centimeters										
3	4.6 meters										
4	6.7 meters										
Common Error	Choosing Tree #1 rather than Tree #4										

MAB222



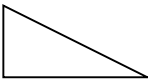

Identify and/or use appropriate units of measurement

Students need assistance with:	Determining appropriate measures (particularly metric units)
Sample	What units of measure would be the most appropriate to determine the height of an office building?
Common Error	Choosing kilometers rather than meters, or miles rather than feet

Note: Analysis of items for benchmark MAB422 have not been included since this benchmark is no longer assessed on FCAT Mathematics Grade 5.

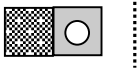
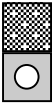
STRAND C**MAC121**

Identify, draw, and/or describe geometric figures using appropriate geometric vocabulary

Students need assistance with:	Using geometric vocabulary (such as types of angles, sides, faces, edges, bases, vertices, points, rays, lines including: parallel/perpendicular/intersecting/diagonals, line segments, radius, and diameter) to identify, draw or describe regular/irregular polygons (especially to differentiate between various types of quadrilaterals), 3D figures, or circles
Sample	Which of the following figures has no right angles and only one set of parallel sides? A.  B.  C.  D. 
Common Error	Choosing any distractor rather than D

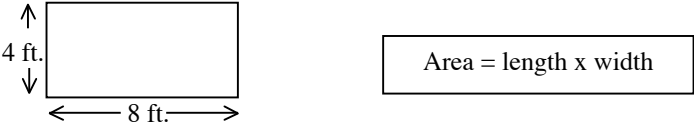
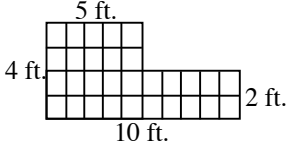
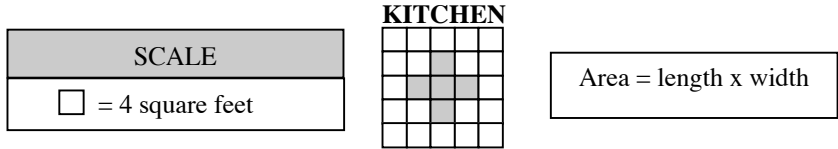
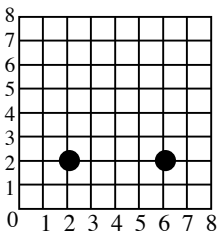
MAC222

Identify the results of a single flip (reflection), slide (translation), or turn (rotation) of a given figure or a combination of no more than two flips, slides, or turns

Students need assistance with:	Combinations of flips, slides, and turns
Sample	Which shows the figure after a flip over the dotted line and a 90° counterclockwise turn? 
Common Error	Choosing various distractors rather than 

MAC321

Identify, draw, or describe geometric figures and/or solve problems by applying geometric properties, formulas, and/or coordinate geometry

Students need assistance with:	Differentiating between and finding the perimeter and area of rectangles or figures made of rectangles combined on a grid
Sample 1	<p>What is the area of the figure below?</p> 
Common Error	Choosing 24 (perimeter) rather than 32 square feet
Sample 2	<p>Border is being placed around the outer edge of the figure below. What is the length of the border?</p> 
Common Error	Choosing 21 feet (adding only the given dimensions) rather than 28 feet (by adding the lengths of all sides)
Students need assistance with:	Using a scale to determine the area of drawings and determining the area of parts of rectangles
Sample	<p>Some of the tile is being replaced in the kitchen shown below. The shaded area will NOT be replaced. How many square feet of tile is needed?</p> 
Common Error	Choosing 20 square feet (not using the scale) or choosing 100 square feet (not subtracting the shaded part), rather than 80 square feet
Students need assistance with:	Solving geometric problems involving coordinate grids
Sample	<p>Which of these pairs of coordinates should be plotted to make a right triangle?</p> 
Common Error	Choosing the coordinates of a point already plotted (2, 2 or 6, 2) or a point which does not result in a right triangle, rather than (2, 6) or other possibilities

STRAND D

MAD121

Recognize and extend patterns and relationships

MAD122

Extend and explain a pattern, relation, or function

Students need assistance with:	Extending geometric or numerical patterns beyond the next step														
Sample 1	<p>How many squares will be used to create a figure 5 units long on each side?</p> <div style="text-align: center;"> </div>														
Common Error	Choosing the number in the next figure, 16 (4 unit sides), rather than 25 (5 unit sides)														
Sample 2	<p>What will be the cost of buying 120 caps?</p> <p style="text-align: center;">COST OF BUYING BASEBALL CAPS FOR TEAMS</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Number of Hats</td> <td>20</td> <td>40</td> <td>60</td> <td>80</td> <td>100</td> <td>120</td> </tr> <tr> <td>Total Cost</td> <td>\$21.50</td> <td>\$43.00</td> <td>\$64.50</td> <td>\$86.00</td> <td></td> <td></td> </tr> </table>	Number of Hats	20	40	60	80	100	120	Total Cost	\$21.50	\$43.00	\$64.50	\$86.00		
Number of Hats	20	40	60	80	100	120									
Total Cost	\$21.50	\$43.00	\$64.50	\$86.00											
Common Error	Choosing the cost of 100 caps, \$107.50, rather than \$129.00														
Students need assistance with:	Identifying expressions which represent relationships in tables														
Sample	<p>If n is the input, which expression should be used to find the output?</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Input</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>7</td> </tr> <tr> <td>3</td> <td>15</td> </tr> <tr> <td>5</td> <td>23</td> </tr> <tr> <td>7</td> <td>31</td> </tr> </tbody> </table>	Input	Output	1	7	3	15	5	23	7	31				
Input	Output														
1	7														
3	15														
5	23														
7	31														
Common Error	Choosing the relationship within the y column, $n + 6$, or an expression which would only identify the relationship in a single row, $6n - 3$ (row 2), rather than $4n + 3$														

MAD221

Identify and/or represent symbolic expressions translated from written phrases or identify and/or express written phrases translated from symbolic expressions

MAD222

Solve problems involving equations or inequalities

Students need assistance with:	Identifying simple inequalities to represent phrases or solve problems involving inequalities										
Sample 1	At a park, children must be at least 6 years old to play on a soccer team. Let p represent any player's age. Which inequality best represents the age of any player on a soccer team?										
Common Error	Choosing $p < 6$, $p > 6$, or $p \leq 6$ rather than $p \geq 6$										
Sample 2	Which students' ages are represented by the inequality $n < 10$?										
STUDENTS' AGES											
<table border="1"> <thead> <tr> <th>Student</th> <th>Age</th> </tr> </thead> <tbody> <tr> <td>Elijah</td> <td>9</td> </tr> <tr> <td>Francine</td> <td>10</td> </tr> <tr> <td>George</td> <td>8</td> </tr> <tr> <td>Hermione</td> <td>11</td> </tr> </tbody> </table>		Student	Age	Elijah	9	Francine	10	George	8	Hermione	11
Student	Age										
Elijah	9										
Francine	10										
George	8										
Hermione	11										
Common Error	Choosing ages 10 and 11 rather than 8 and 9										

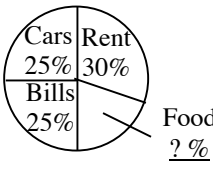
Students need assistance with:	Analyzing a situation to identify the appropriate expression(s) to represent and/or solve a problem												
Sample 1	A family traveled n miles to Orlando and the same distance back. They repeated the same trip again a month later. Which expression can be used to find how many total miles they traveled during both round trips ?												
Common Error	Choosing $n + 4$ rather than $n \times 4$												
Sample 2	Jack is 4 years younger than his brother. Let j represent Jack's age. Which expression can be used to find his brother's age?												
Common Error	Choosing $j - 4$ rather than $j + 4$												
Sample 3	Look at the table below.												
CANS COLLECTED FOR RECYCLING													
<table border="1"> <thead> <tr> <th>Week</th> <th>Number of Cans</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> </tr> <tr> <td>2</td> <td></td> </tr> <tr> <td>3</td> <td></td> </tr> <tr> <td>4</td> <td>84</td> </tr> <tr> <td>Total</td> <td>n</td> </tr> </tbody> </table>		Week	Number of Cans	1		2		3		4	84	Total	n
Week	Number of Cans												
1													
2													
3													
4	84												
Total	n												
	Which expression can be used to determine the number of cans collected during the first 3 weeks of the month?												
Common Error	Choosing $n + 84$ rather than $n - 84$												

STRAND E

MAE121

Organize and/or display data; analyze, interpret, or compare data using tables, graphs, or charts; use the data to solve problems; and/or determine the most appropriate data display

Students need assistance with:	Interpreting stem-and-leaf plots (understanding the difference between stems and leaves)									
Sample	Based on the stem-and-leaf plot, which of these statements is true? <p style="text-align: center;">HEIGHTS OF STUDENTS</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding-right: 20px;">3 3 = 33 inches</td> <td style="border-right: 1px solid black; padding-right: 10px;">3</td> <td>3 4 5 5 7</td> </tr> <tr> <td></td> <td style="border-right: 1px solid black; padding-right: 10px;">4</td> <td>2 4 4 5 5 5 8</td> </tr> <tr> <td></td> <td style="border-right: 1px solid black; padding-right: 10px;">5</td> <td>1 2 3 5 6</td> </tr> </table>	3 3 = 33 inches	3	3 4 5 5 7		4	2 4 4 5 5 5 8		5	1 2 3 5 6
3 3 = 33 inches	3	3 4 5 5 7								
	4	2 4 4 5 5 5 8								
	5	1 2 3 5 6								
Common Error	Choosing “Most students are over 50 inches.” (5 is the most common leaf) rather than “Two students are 44 inches tall.”									

Students need assistance with:	Completing circle graphs with common fractions and percents
Sample	What percent of the budget is spent on food? <p style="text-align: center;">ROBINSON FAMILY’S BUDGET</p>  <p style="text-align: center;">Cars 25% Rent 30% Bills 25% Food ?%</p>
Common Error	Adding the given percents and choosing 80% rather than 20%

Students need assistance with:	Comparing data on a line graph
Sample	Which period shows the greatest change?
Common Error	Choosing the period with data the greatest in <i>value</i> rather than the period that shows the greatest <i>change</i> from the previous period

MAE122

Determine or apply range, mean, median, and/or mode

Students need assistance with:	Determining the mean of a set of data
Sample	The ages of children in a family are 10, 12, 11, 11, and 6. What is the mean of their ages?
Common Error	Choosing 11 (mode) or other measures of central tendency, rather than 10

Students need assistance with:	Determining the range of a set of data
Sample	The ages of children in a group are 7, 9, 8, 4, 8, 5, and 6. What is the range of their ages?
Common Error	Choosing 8 (mode) rather than 5

Students need assistance with:	Determining the median of a set of data
Sample	The ages of children in a group are 7, 9, 8, 4, 8, 5, and 6. What is the median of their ages?
Common Error	Choosing 4 (the middle number before reordering) rather than 7

MAE122 (continued)

Students need assistance with:	Determining the mode of a set of data
Sample	The ages of children in a group are 7, 9, 8, 4, 8, 5, and 6. What is the mode of their ages?
Common Error	Choosing 9 (most in <i>value</i>) rather than 8 (most in <i>frequency</i>)

MAE221

Identify possible outcomes and/or predict the outcome of simple events

Students need assistance with:	Determining the number of possible combinations within a single group (Combinations-order does NOT matter: AB=BA so only one is included)
Sample	Adam, Betsy, Carl, and Diana need to split into pairs for a project. How many two-person teams are possible?
Common Error	Choosing the number in the group, 4, or multiplying the number in the group (4) by the number in the combination (2) and choosing 8, rather than 6 (AB, AC, AD, BC, BD, CD)

Students need assistance with:	Determining the number of possible arrangements within a single group (Arrangement-order DOES matter: ABC and ACB are included)
Sample	Adam, Betsy, and Carl join a line to go on a roller coaster. How many possible arrangements are there for them to stand in line?
Common Error	Choosing the number in the group, 4, rather than 6 (ABC, ACB, BAC, BCA, CAB, CBA)

MAE321

Given a scenario, determine or evaluate the components or results of an experiment

Students need assistance with:	Making inferences from data												
Sample	<p>The table shows Natalie's bowling score each week after receiving a lesson.</p> <p style="text-align: center;">NATALIE'S BOWLING SCORES</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Week</th> <th>Score</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>56</td> </tr> <tr> <td>2</td> <td>68</td> </tr> <tr> <td>3</td> <td>74</td> </tr> <tr> <td>4</td> <td>82</td> </tr> <tr> <td>5</td> <td></td> </tr> </tbody> </table> <p>Which of the following best predicts Natalie's bowling score on week 5? A. 78 B. 82 C. 88 D. 124</p>	Week	Score	1	56	2	68	3	74	4	82	5	
Week	Score												
1	56												
2	68												
3	74												
4	82												
5													
Common Error	Choosing the score from week four, 82, rather than 88 which supports the data that shows steady improvement												