

Benchmark Assessment Test 2005
Math Grade 8
Interpretive Guide

STRAND A

MAA134

Express numbers in equivalent forms

Students need assistance with:	Finding equivalent forms involving decimals, fractions, and percents
Sample	Mary saved \$30 of the \$80 she earned during the summer. What percent of her earnings did she save?
Common Error	Choosing 27% ($80 \div 30 = 2.7$) rather than 37.5%

MAA332

Simplify mathematical expressions using the correct order of operations or identify the correct order of operations

Students need assistance with:	Using the correct order of operations after solving parentheses and exponents
Sample	$8 - (5 + 2) + 5^2 \times 2$
Common Error	Choosing 52 (simplifying to $8 - (7) + 25 \times 2$, but then solving left to right by subtracting and adding before multiplying) rather than 51

MAA333

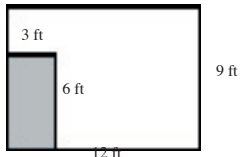
Solve a single- or multi-step problem using appropriate computations and rounding strategies where appropriate

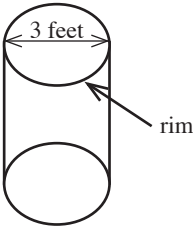
Students need assistance with:	Determining the percent increase or decrease
Sample	A worker earned \$32,000 last year and \$40,000 this year. What is the percent increase?
Common Error	Choosing any distractor rather than 25%

STRAND B

MAB131

Develop and/or apply a procedure or formula to solve and/or explain a problem involving perimeter, area, surface area, circumference, or volume

Students need assistance with:	Determining the area of portions 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> <p style="text-align: center;">KITCHEN</p> 
Common Error	Choosing 40 (perimeter), 31 (perimeter - 9), or 96 (area of the whole) rather than 78 square feet

Students need assistance with:	Finding the circumference of a figure
Sample	<p>The rim of the tank below is being sealed with tape. What length of tape is needed for the seal?</p> 
Common Error	Choosing 6 feet rather than 9.42 feet

MAB133

Determine the effects of changing dimensions on other measures or solve problems involving the effects of changing dimensions

Students need assistance with:	Determine the effects of changing dimensions on other measures or solve problems involving the effects of changing dimensions
Sample	Jesse used 1-foot square tiles to cover the floor of his 6-foot-by-6-foot bathroom and wants to use the same tiles in the kitchen. The floor of his kitchen is double the length and double the width of the bathroom floor. How many times the number of floor tiles used to cover the bathroom floor should it take to cover the kitchen floor?
Common Error	Choosing 72 (doubling the area of the bathroom) rather than 144 square feet

MAB134

Interpret and solve a problem using scale drawings

Students need assistance with:	Using scales involving fractions to solve problems
Sample	A diagram of a building is drawn using a scale of $\frac{1}{4}$ inch = 100 feet. If the diagram is $2\frac{1}{2}$ inches wide, how wide is the actual building?
Common Error	Choosing various distractors rather than 1000 feet

MAB232

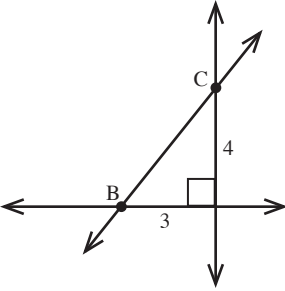
Solve a problem involving conversions to other units

Students need assistance with:	Carefully reading problems to identify need for conversion
Sample	The distance from Robert's house to a boat dock is 425 meters. Robert walks to the dock and back to his house each day. After 3 days, how far, in kilometers , will Robert have walked?
Common Error	Choosing 2550 rather than 2.55

STRAND C

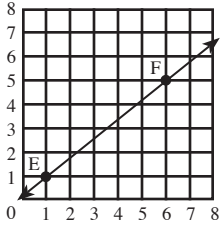
MAC231

Identify, apply and explain various geometric concepts related to spatial generalization, including parallelism, perpendicularity, symmetry, congruency, similarity, and transformations, including reflections, translations, rotations, or dilations

Students need assistance with:	Applying the Pythagorean theorem
Sample	<p>What is the length of \overline{BC}?</p> 
Common Error	Choosing 7 (adding 4 and 3) or 1 (subtracting 4 and 3) rather than 5 units

MAC332

Identify and/or plot coordinates of a point, apply simple properties of lines, and/or interpret the results

Students need assistance with:	Finding the slope of a line
Sample	<p>What is the slope of the line connecting E and F?</p> 
Common Error	Choosing 5/4 rather than 4/5

STRAND D

MAD131

Recognize, analyze, and/or apply patterns, sequences, relationships, and functions in a variety of settings

Students need assistance with:	Determining which step in a pattern or sequence solves the problem														
Sample	<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;"> <thead> <tr> <th>Number of Hats</th> <th>20</th> <th>40</th> <th>60</th> <th>80</th> <th>100</th> <th>120</th> </tr> </thead> <tbody> <tr> <th>Total Cost</th> <td>\$21.50</td> <td>\$43.00</td> <td>\$64.50</td> <td>\$86.00</td> <td></td> <td></td> </tr> </tbody> </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														

MAD231

Translate a written description or a graphic to an expression, equation or inequality or translate an expression, equation or inequality to a written or graphic description to solve a real-world problem

MAD232

Solve problems involving expressions, equations and/or inequalities

Students need assistance with:	Identifying equations and inequalities which represent real-world situations
Sample	At a park, players must be at least 12 years old to play on a basketball team. Let p represent any player's age. Which inequality best represents the age of any player on a team?
Common Error	Choosing $p = 12$ or $p \leq 12$, rather than $p \geq 12$

STRAND E

MAE231

Identify possible outcomes and compare and/or explain the results of experiments

Students need assistance with:	Comparing the results of experiments									
Sample	<p>Students flipped a dime and a nickel 20 times each and recorded the results below.</p> <p style="text-align: center;">COIN FLIP RESULTS</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Coin</th> <th>Heads</th> <th>Tails</th> </tr> </thead> <tbody> <tr> <td>Dime</td> <td>9</td> <td>11</td> </tr> <tr> <td>Nickel</td> <td>15</td> <td>5</td> </tr> </tbody> </table>	Coin	Heads	Tails	Dime	9	11	Nickel	15	5
Coin	Heads	Tails								
Dime	9	11								
Nickel	15	5								
Common Error	Choosing "The results for both coins are as expected." rather than "The result for the nickel landing on tails is 50% less than expected."									

MAE232

Determine odds for or odds against a specified outcome, or the probability of a simple event occurring

Students need assistance with:	Determining the odds in favor and against events occurring
Sample	Mark scored 4 out of 10 of the free throws that he shot so far. Based on this record, what would be the odds in favor of Mark scoring the next time he shoots a free throw?
Common Error	Choosing 10 to 4, 2 to 5, or 3 to 2 rather than 2 to 3