

**3rd Mathematics Achievement Test
Number, Number Sense and Operation Standard**

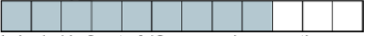
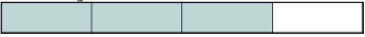
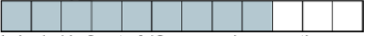
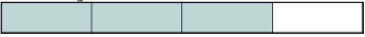
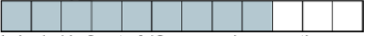
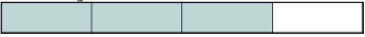
Benchmark A

Question 4	March 2008	C
Question 10	Fall 2005	C
Question 1	March 2005	A

Benchmark B

Question 1	Spring 2010	A
Question 30	May 2009	B
Question 17	March 2006	A
Question 45	March 2005	C

Benchmark C

Question 1	May 2009	A								
Question 38	March 2008	<table border="1"> <thead> <tr> <th>Points</th> <th>Student Response</th> </tr> </thead> <tbody> <tr> <td>2 point</td> <td> <p>The focus of this task is representing fractions by using numbers and models. The response provides the correct fraction with an appropriate model and a clear explanation that mentions the numerator and the denominator.</p> <div style="text-align: center;"> $\frac{9}{12}$  <p>I shaded in 9 out of 12 squares because there are 12 students and 9 went skating.</p> </div> <div style="text-align: center;"> $\frac{3}{4}$  <p>I divided the bar into fourths and shaded in 3 of them. I divided the 12 friends into 4 equal groups and 3 of the groups went skating.</p> </div> </td> </tr> <tr> <td>1 point</td> <td> <p>The response shows partial evidence of representing fractions by using numbers and models; however, the solution may be incomplete or slightly flawed. For example, the response may:</p> <ul style="list-style-type: none"> State the correct fraction but fail to accurately shade in the bar. State an incorrect fraction but shade the bar so it corresponds to the fraction, and adequately explain the model. </td> </tr> <tr> <td>0 point</td> <td> <p>The response provides inadequate evidence of representing fractions by using numbers and models. The response provides an explanation with major flaws and errors of reasoning. For example, the response may:</p> <ul style="list-style-type: none"> Only provide an answer that is not in the form of a fraction. Restate the information provided in the item. Be blank or give irrelevant information. </td> </tr> </tbody> </table>	Points	Student Response	2 point	<p>The focus of this task is representing fractions by using numbers and models. The response provides the correct fraction with an appropriate model and a clear explanation that mentions the numerator and the denominator.</p> <div style="text-align: center;"> $\frac{9}{12}$  <p>I shaded in 9 out of 12 squares because there are 12 students and 9 went skating.</p> </div> <div style="text-align: center;"> $\frac{3}{4}$  <p>I divided the bar into fourths and shaded in 3 of them. I divided the 12 friends into 4 equal groups and 3 of the groups went skating.</p> </div>	1 point	<p>The response shows partial evidence of representing fractions by using numbers and models; however, the solution may be incomplete or slightly flawed. For example, the response may:</p> <ul style="list-style-type: none"> State the correct fraction but fail to accurately shade in the bar. State an incorrect fraction but shade the bar so it corresponds to the fraction, and adequately explain the model. 	0 point	<p>The response provides inadequate evidence of representing fractions by using numbers and models. The response provides an explanation with major flaws and errors of reasoning. For example, the response may:</p> <ul style="list-style-type: none"> Only provide an answer that is not in the form of a fraction. Restate the information provided in the item. Be blank or give irrelevant information.
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Question 43	Spring 2007	B								

Benchmark D

Question 2	Fall 2005	A
Question 27	March 2006	A

Benchmark F

Question 36	Spring 2010	B
Question 22	March 2008	B
Question 29	March 2005	B
Question 33	Spring 2007	E

Benchmark G

Question 17	March 2005	A
Question 45	March 2006	A

Benchmark H

Question 41	Spring 2010	A
Question 32	March 2008	B
Question 41	March 2006	A

Benchmark I

Question 34	May 2009	B

Benchmark J

Question 8	Spring 2010	B
Question 12	March 2008	B
Question 35	March 2008	C
Question 38	March 2006	S
Question 11	March 2005	B
Question 8	Fall 2005	A

Benchmark K

Question 20	Spring 2010	<table border="1"> <thead> <tr> <th colspan="2">Scoring Guidelines</th> </tr> <tr> <th>Points</th> <th>Student Response</th> </tr> </thead> <tbody> <tr> <td>4 point</td> <td> <p>Exemplar Response: There are $2 \times 4 \times 12$ or 96 pencils. Kevin is wrong. If each box had 20 pencils, there would be 160 pencils in all. This is 64 more pencils. The focus of this task is solving a multi-step problem involving the concepts of multiplication and subtraction. The response includes a correct explanation for why Kevin is wrong and supporting calculations or explanation.</p> </td> </tr> <tr> <td>3 point</td> <td> <p>The response provides evidence of solving a multi-step problem involving the concepts of multiplication and subtraction; however, the solution may contain a slight error, a flaw or a vague explanation.</p> </td> </tr> <tr> <td></td> <td> <p>3 point sample answer: For example, the response may:</p> <ul style="list-style-type: none"> • Give the correct number of pencils, with support, and state that Kevin is wrong, with a minor calculation error in the supporting work. • Give an incorrect number of pencils with an adequate explanation based on the incorrect calculation, and state "no" with accurate support. </td> </tr> <tr> <td>2 point</td> <td> <p>The response provides partial evidence of solving a multi-step problem involving the concepts of multiplication and subtraction; however, the solution is incomplete and/or contains flaws.</p> <p>2 point sample answer: For example, the response may:</p> <ul style="list-style-type: none"> • Show or explain the calculations for the number of pencils in the cartons but provide no response or an incorrect response to Kevin's claim. • Give the correct number of pencils, with support, and state that Kevin is incorrect, without mathematical support. • Give the correct number of pencils, with support, and state that Kevin is incorrect, with a mathematical explanation that is flawed. </td> </tr> <tr> <td>1 point</td> <td> <p>The response provides minimal evidence of solving a multi-step problem involving the concepts of multiplication and subtraction. The response has major flaws and errors in reasoning.</p> <p>1 point sample answer: For example, the response may:</p> <ul style="list-style-type: none"> • Provide calculations that show a correct strategy (e.g., finds the number of boxes in two cartons, states the number of pencils in one carton), but does not state the number of pencils in the cartons. • Provide the correct number of total pencils with no supporting work. </td> </tr> <tr> <td>0 point</td> <td> <p>The response provides inadequate evidence of solving a multi-step problem involving the concepts of multiplication and subtraction.</p> </td> </tr> </tbody> </table>	Scoring Guidelines		Points	Student Response	4 point	<p>Exemplar Response: There are $2 \times 4 \times 12$ or 96 pencils. Kevin is wrong. If each box had 20 pencils, there would be 160 pencils in all. This is 64 more pencils. 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Question 15	May 2009	Scoring Guidelines	
		Points	Student Response
		4 point	<p>The response demonstrates an ability to solve multi-step problems involving multiplication, and making change. The response contains three components:</p> <ul style="list-style-type: none"> An accurate combination of full packages yielding 48 buns. The correct cost for the 48 buns Identification of the coins and bills needed to pay for 48 buns. <p>Examples of correct answers: 6 packages of 8 buns 6 ones or 5 ones and 4 quarters \$6.00 OR 3 packages of 8 buns and 2 packages of 12 buns 5 ones and 2 quarters \$5.50 OR 4 packages of 12 buns 4 ones and 4 quarters or 5 ones \$5.00 Note: The circled bills and coins should total an amount equal to or greater than the cost of the stated combination of packages in the first part.</p>
		3 point	<p>The response demonstrates an ability to solve multi-step problems involving multiplication and making change. However, the response contains a slight flaw in one of the components. For example, the response:</p> <ul style="list-style-type: none"> Selects a combination of packages that results in something other than 48 buns but demonstrates an appropriate strategy for the selection and selects adequate bills and coins using the incorrect combination. Selects a combination resulting in 48 buns but miscalculates the cost or circles an amount too small to pay for the selected combination.
		2 point	<p>The response demonstrates an ability to solve multi-step problems involving multiplication or making change. However, the response contains errors or omissions. For example, the response:</p> <ul style="list-style-type: none"> Selects a combination of packages that is incorrect and provides no explanation for how the combination was selected. The response does state the cost correct based on the combination error and selects an adequate combination of bills and coins. States a cost associated with an accurate combination of packages and identifies an adequate amount of bills and coins, but fails to state a combination of packages.
		1 point	<p>The response demonstrates an ability to solve multi-step problems involving multiplication or making change. However, the response is highly flawed. For example, the response:</p> <ul style="list-style-type: none"> States an inaccurate combination and an inaccurate cost, but selects appropriate bills and coins.
		0 point	<p>The response demonstrates no ability to solve multi-step problems involving multiplication or making change. For example, the response:</p> <ul style="list-style-type: none"> Does not complete any bullets correctly. Restate information provided in the item. Be blank or provide irrelevant information.

Benchmark K Continued

Question 13	Fall 2005	<p><input checked="" type="checkbox"/> Scoring Guidelines</p> <p>Points</p> <p>4</p> <p>The focus of this item is to analyze and solve a multi-step problem. Addition and/or multiplication skills are required to solve the problem. The response shows a correct strategy for obtaining the highest score while meeting the criteria for the number of bean bags tossed into "holes" and/or the total score for those tosses AND showing a possible way a given score could have been obtained.</p> <p>The response shows the highest score as 46 with a correct strategy meeting the criteria for the number of bean bags tossed into "holes" and/or the total score for those tosses AND a method for obtaining 35 points by tossing five bean bags into the holes. For example:</p> <table border="0"> <thead> <tr> <th>Points</th> <th>Student Response</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>$3 \times 10 + 2 \times 8$</td> </tr> <tr> <td>(cont'd)</td> <td>OR</td> </tr> <tr> <td></td> <td>$10 + 10 + 10 + 8 + 8$</td> </tr> <tr> <td></td> <td>OR</td> </tr> <tr> <td></td> <td>$7 + 7 + 7 + 7 + 7$</td> </tr> <tr> <td></td> <td>OR</td> </tr> <tr> <td></td> <td>5×7</td> </tr> <tr> <td></td> <td>OR</td> </tr> <tr> <td></td> <td>$10 + 10 + 5 + 5 + 5$</td> </tr> <tr> <td></td> <td>OR</td> </tr> <tr> <td></td> <td>$8 + 8 + 8 + 5 + 6$</td> </tr> </tbody> </table> <p>3</p> <p>The response clearly addresses the key aspects of the task; however, it includes an error in computation or the strategy is missing. For example, the response may: Correctly show the highest score as 46 with a correct strategy meeting the criteria for the number of bean bags tossed into "holes" and/or the total score for those tosses, but has five tosses that do not add to 35 points OR has more or less than five tosses that add to 35.</p> <p>OR</p> <p>Show the highest score as 46 without a strategy AND show a correct method for obtaining 35 points.</p> <p>OR</p> <p>Show a correct strategy for obtaining the highest score but may have made an error in the sum ($10 + 10 + 10 + 8 + 8 = 56$) AND show a correct method for obtaining 35 points.</p> <p>2</p> <p>The response provides evidence of a partially correct answer and/or solution process. The response may address one situation appropriately and/or include solutions that do not address the criteria for the number of tosses (three tosses in the same hole and two tosses in a different hole). For example, the response may: Show the highest score as 46 with a correct strategy BUT may show an incorrect method or no method for obtaining 35 points.</p> <p>OR</p> <p>Indicate the highest score as 50 by tossing all five bean bags in the 10 points hole, ignoring the conditions (i.e., three tosses in the same hole and two tosses in a different hole) AND give a correct method for obtaining 35 points.</p> <p>1</p> <p>The response omits significant aspects of the task. It may include major gaps or flaws in addressing one of the situations. There is evidence of the process needed to yield the correct answer; however, the response includes significant computational errors in one or both of the components of the task. For example, the response may: Show the correct strategy for only one of the situations with a computational error resulting in an incorrect sum.</p> <p>OR</p> <table border="0"> <thead> <tr> <th>Points</th> <th>Student Response</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Show a correct score of 46 with no strategy given AND show no correct strategy for obtaining a score of 35 points.</td> </tr> <tr> <td>(cont'd)</td> <td>OR</td> </tr> <tr> <td></td> <td>Show a correct method for obtaining a score of 35 points, but no strategy or an incorrect strategy for obtaining the highest score in the first task, resulting in an incorrect score.</td> </tr> </tbody> </table> <p>0</p> <p>The response indicates inadequate or no understanding of the task and does not meet the requirements for one point. For example, the response may: Show an incorrect strategy and score for both parts of the task that do not address the conditions of the task.</p> <p>OR</p> <p>Show adding all of the point values ($5 + 7 + 8 + 10 + 6 = 36$) without showing a strategy for obtaining a score of 35 points.</p>	Points	Student Response	4	$3 \times 10 + 2 \times 8$	(cont'd)	OR		$10 + 10 + 10 + 8 + 8$		OR		$7 + 7 + 7 + 7 + 7$		OR		5×7		OR		$10 + 10 + 5 + 5 + 5$		OR		$8 + 8 + 8 + 5 + 6$	Points	Student Response	1	Show a correct score of 46 with no strategy given AND show no correct strategy for obtaining a score of 35 points.	(cont'd)	OR		Show a correct method for obtaining a score of 35 points, but no strategy or an incorrect strategy for obtaining the highest score in the first task, resulting in an incorrect score.
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Benchmark K Continued

Question 15	March 2005	Scoring Guidelines																																																																									
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		4	<p>The response indicates:</p> <ul style="list-style-type: none"> • correct total • correct strategy or work for first part • complete table with number of items and costs • table totals 85¢ <p>Examples of correct answers: Part A: $10¢ + 10¢ + 15¢ + 15¢ + 15¢ + 15¢ + 15¢ + 25¢ + 25¢ = 145¢$ or 1.45 or \$1.45 OR $2 \times 10 = 20$; $5 \times 15 = 75$; $2 \times 25 = 50$; $20 + 75 + 50 = 145¢$ or 1.45 or \$1.45 Part B: (any one of the following tables is correct)</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td>Pencils</td><td>0</td><td>0</td></tr> <tr><td>Pens</td><td>4</td><td>60</td></tr> <tr><td>Erasers</td><td>1</td><td>25</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td>Pencils</td><td>1</td><td>10</td></tr> <tr><td>Pens</td><td>5</td><td>75</td></tr> <tr><td>Erasers</td><td>0</td><td>0</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>Pencils</td><td>1</td><td>10</td></tr> <tr><td>Pens</td><td>0</td><td>0</td></tr> <tr><td>Erasers</td><td>3</td><td>75</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td>Pencils</td><td>2</td><td>20</td></tr> <tr><td>Pens</td><td>1</td><td>15</td></tr> <tr><td>Erasers</td><td>2</td><td>60</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td>Pencils</td><td>3</td><td>30</td></tr> <tr><td>Pens</td><td>2</td><td>30</td></tr> <tr><td>Erasers</td><td>1</td><td>25</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>Pencils</td><td>4</td><td>40</td></tr> <tr><td>Pens</td><td>3</td><td>45</td></tr> <tr><td>Erasers</td><td>0</td><td>0</td></tr> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td>Pencils</td><td>6</td><td>60</td></tr> <tr><td>Pens</td><td>0</td><td>0</td></tr> <tr><td>Erasers</td><td>1</td><td>25</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>Pencils</td><td>7</td><td>70</td></tr> <tr><td>Pens</td><td>1</td><td>15</td></tr> <tr><td>Erasers</td><td>0</td><td>0</td></tr> </table>	Pencils	0	0	Pens	4	60	Erasers	1	25	Pencils	1	10	Pens	5	75	Erasers	0	0	Pencils	1	10	Pens	0	0	Erasers	3	75	Pencils	2	20	Pens	1	15	Erasers	2	60	Pencils	3	30	Pens	2	30	Erasers	1	25	Pencils	4	40	Pens	3	45	Erasers	0	0	Pencils	6	60	Pens	0	0	Erasers	1	25	Pencils	7	70	Pens	1	15	Erasers	0	0
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Benchmark L

Question 7	March 2005		C
Question 21	March 2005		A
Question 39	March 2005		C
Question 20	Fall 2005		B
Question 41	March 2005		A

Question 10	Spring 2007	<p>10. Five children share 27 crayons. Each child gets the same number of crayons.</p> <p>How many crayons will each child get? _____</p> <p>How many crayons will be left over? _____</p> <div style="border: 1px solid black; padding: 10px;"><p>Show or explain your answer using pictures, words or numbers.</p></div>
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