

**4 Mathematics Ohio Graduation Test  
Patterns, Functions and Algebra Standard**

**Benchmark A**

Question 8	Spring 2010		C										
Question 19	March 2008		D										
Question 42	March 2008		C										
Question 3	March 2006		C										
Question 29	March 2006	<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>2</td> <td> <p>The focus of this task is analyzing, extending and describing numerical patterns. The response provides the next three numbers in the pattern and describes the pattern.</p> <p>Sample Correct Responses:</p> <ul style="list-style-type: none"> <li>• 52, 63, 74. The pattern is to add 11 to the previous number.</li> <li>• 52, 63, 74. Plus 11 each time.</li> </ul> </td> </tr> <tr> <td>1</td> <td> <p>The response shows partial evidence of analyzing, extending and describing numerical patterns; however, the solution may be incomplete or slightly flawed. For example, the response may:</p> <ul style="list-style-type: none"> <li>• State that the next numbers in the pattern are 52, 63, and 74, but not correctly describe the rule.</li> <li>• Identify an accurate rule, but not correctly find all three of the numbers in the pattern. E.g., 53, 64, 75. The pattern is to add 11 each time.</li> </ul> </td> </tr> <tr> <td>0</td> <td> <p>The response provides inadequate evidence of analyzing, extending and describing numerical patterns. The response provides an explanation with major flaws and errors of reasoning. For example, the response may:</p> <ul style="list-style-type: none"> <li>• State that the next three numbers in the pattern are 42, 43, 44 and that the numbers get bigger each time.</li> <li>• Be blank or state unrelated statements.</li> <li>• Recopy information from the stem.</li> </ul> </td> </tr> </tbody> </table>	Scoring Guidelines		Points	Student Response	2	<p>The focus of this task is analyzing, extending and describing numerical patterns. The response provides the next three numbers in the pattern and describes the pattern.</p> <p>Sample Correct Responses:</p> <ul style="list-style-type: none"> <li>• 52, 63, 74. The pattern is to add 11 to the previous number.</li> <li>• 52, 63, 74. Plus 11 each time.</li> </ul>	1	<p>The response shows partial evidence of analyzing, extending and describing numerical patterns; however, the solution may be incomplete or slightly flawed. For example, the response may:</p> <ul style="list-style-type: none"> <li>• State that the next numbers in the pattern are 52, 63, and 74, but not correctly describe the rule.</li> <li>• Identify an accurate rule, but not correctly find all three of the numbers in the pattern. E.g., 53, 64, 75. The pattern is to add 11 each time.</li> </ul>	0	<p>The response provides inadequate evidence of analyzing, extending and describing numerical patterns. The response provides an explanation with major flaws and errors of reasoning. For example, the response may:</p> <ul style="list-style-type: none"> <li>• State that the next three numbers in the pattern are 42, 43, 44 and that the numbers get bigger each time.</li> <li>• Be blank or state unrelated statements.</li> <li>• Recopy information from the stem.</li> </ul>	
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### Benchmark B

Question 2	Spring 2010		D										
Question 29	May 2009		C										
Question 5	March 2008	<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>2 point</td> <td> <p>Sample Correct Responses:</p> <ul style="list-style-type: none"> <li>16 benches. The pattern is that you multiply the number of cans by 2 to get the number of benches you can paint. <math>8 \times 2 = 16</math></li> <li>16 benches. The table shows that the number of benches goes up by 4 so I added <math>12 + 4 = 16</math>.</li> <li>16 benches. The number of cans is doubled to get the number of benches. <math>8 + 8 = 16</math>.</li> </ul> <p>The focus of this task is to provide evidence of analyzing, extending and describing patterns. The response correctly identifies the number of benches and provides adequate support to explain how to find the answer.</p> </td> </tr> <tr> <td>1 point</td> <td> <p>The response provides partial evidence of analyzing, extending and describing patterns; however, the solution may be incomplete or slightly flawed.</p> <p>For example, the response may:</p> <ul style="list-style-type: none"> <li>State that 16 benches can be painted but not explain how the answer was found or there is a flaw in the explanation.</li> <li>Indicate an accurate rule for finding the number of benches that can be painted but does not correctly find the number of benches that can be painted. E.g., 14 benches. You keep adding 4 to the number of benches.</li> </ul> </td> </tr> <tr> <td>0 point</td> <td> <p>The response provides inadequate evidence of analyzing, extending and describing patterns. The response will provide major flaws or irrelevant information.</p> <p>For example, the response may:</p> <ul style="list-style-type: none"> <li>Show some work but use a highly flawed strategy. E.g., 20 benches. Add <math>4 + 8 = 12</math>, <math>8 + 12 = 20</math>.</li> <li>Be blank or state unrelated statements.</li> <li>Recopy information from the stem.</li> </ul> </td> </tr> </tbody> </table>	Scoring Guidelines		Points	Student Response	2 point	<p>Sample Correct Responses:</p> <ul style="list-style-type: none"> <li>16 benches. The pattern is that you multiply the number of cans by 2 to get the number of benches you can paint. <math>8 \times 2 = 16</math></li> <li>16 benches. The table shows that the number of benches goes up by 4 so I added <math>12 + 4 = 16</math>.</li> <li>16 benches. The number of cans is doubled to get the number of benches. <math>8 + 8 = 16</math>.</li> </ul> <p>The focus of this task is to provide evidence of analyzing, extending and describing patterns. The response correctly identifies the number of benches and provides adequate support to explain how to find the answer.</p>	1 point	<p>The response provides partial evidence of analyzing, extending and describing patterns; however, the solution may be incomplete or slightly flawed.</p> <p>For example, the response may:</p> <ul style="list-style-type: none"> <li>State that 16 benches can be painted but not explain how the answer was found or there is a flaw in the explanation.</li> <li>Indicate an accurate rule for finding the number of benches that can be painted but does not correctly find the number of benches that can be painted. E.g., 14 benches. You keep adding 4 to the number of benches.</li> </ul>	0 point	<p>The response provides inadequate evidence of analyzing, extending and describing patterns. The response will provide major flaws or irrelevant information.</p> <p>For example, the response may:</p> <ul style="list-style-type: none"> <li>Show some work but use a highly flawed strategy. E.g., 20 benches. Add <math>4 + 8 = 12</math>, <math>8 + 12 = 20</math>.</li> <li>Be blank or state unrelated statements.</li> <li>Recopy information from the stem.</li> </ul>	
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Question 45	March 2008		C										
Question 7	March 2006		D										
Question 19	March 2006		B										

### Benchmark C

Question 18	Spring 2010		A
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### Benchmark D

Question 40	March 2006		A
Question 37	Spring 2007		D

### Benchmark E

Question 34	Spring 2010		C
Question 24	March 2006		B
Question 34	March 2006		A
Question 40	March 2006		A

**Benchmark F**

		Scoring Guidelines																													
Question	Spring	Points	Student Response																												
39	2010	2 point	<p><b>Exemplar Response:</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Week</th> <th>Amount Jane puts in</th> <th>Amount her mother puts in</th> <th>Total Amount</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>\$2</td> <td>\$1</td> <td>\$3</td> </tr> <tr> <td>2</td> <td>\$2</td> <td>\$1</td> <td>\$6</td> </tr> <tr> <td>3</td> <td>\$2</td> <td>\$1</td> <td>\$9</td> </tr> <tr> <td>4</td> <td>\$2</td> <td>\$1</td> <td>\$12</td> </tr> </tbody> </table> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td>1</td> <td>\$3</td> </tr> <tr> <td>2</td> <td>\$6</td> </tr> <tr> <td>3</td> <td>\$9</td> </tr> <tr> <td>4</td> <td>\$12</td> </tr> </tbody> </table> <p>The focus of the task is constructing a table of values to represent a given relationship. The response provides a table with the correct total values after each week.</p>	Week	Amount Jane puts in	Amount her mother puts in	Total Amount	1	\$2	\$1	\$3	2	\$2	\$1	\$6	3	\$2	\$1	\$9	4	\$2	\$1	\$12	1	\$3	2	\$6	3	\$9	4	\$12
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2	\$2	\$1	\$6																												
3	\$2	\$1	\$9																												
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4	\$12																														
		1 point	<p>The response provides partial evidence of constructing a table of values to represent a given relationship; however, the response may be incomplete or slightly flawed.</p> <p>1 point sample answer:</p> <p>For example, the response may:</p> <ul style="list-style-type: none"> <li>• Provide a table with a calculation error that is carried through.</li> <li>• Provide correct total for each week but fail to display the data in a table.</li> <li>• Provide an amount for each week (\$3) and show the cumulative total (\$12).</li> </ul>																												
		0 point	<p>The response provides inadequate evidence of constructing a table of values to represent a given relationship. The response provides an explanation with major flaws and errors of reasoning.</p> <p>0 point sample answer:</p> <p>For example, the response may:</p> <ul style="list-style-type: none"> <li>• Show one or two values for her bank account balance, but contain no table.</li> <li>• Restate the information provided in the item.</li> <li>• Be blank or give irrelevant information.</li> </ul>																												
Question 45	Spring 2007		<b>B</b>																												

**Benchmark G**

Question 13	Spring 2010	A
Question 8	May 2009	B
Question 44	March 2006	D