

**10th Mathematics Ohio Graduation Test
Patterns, Functions, and Algebra Standard**

Benchmark A

Question 17	Spring 2009	Score Point	Description	
		2 points	The response includes a valid mathematical rule or equation for finding the number of shaded squares in the n^{th} figure, and uses that rule to correctly find the number of shaded squares in the 50th figure.	
		1 point	The response provides evidence of a partially correct answer and/or solution process. The response shows understanding of some key elements of the task but contains gaps or flaws.	
			1 point sample answer:	
			For example, the response may:	
			<ul style="list-style-type: none"> The response does not include a valid rule or equation, but does find the number of shaded squares in the 50th figure by some demonstrated method, including adding 2 to the previous number of shaded squares 49 times. 	
			OR	
			<ul style="list-style-type: none"> The response includes a valid rule or equation but calculation errors lead to an incorrect answer for the number of squares in the 50th figure. 	
			OR	
			<ul style="list-style-type: none"> The response includes a valid rule or equation but does not attempt to find the number of shaded squares in the 50th figure. 	
			OR	
			<ul style="list-style-type: none"> The rule or equation found is incorrect, but is applied to produce an answer for the 50th term that is consistent with the incorrect rule. For example, the rule is stated as $2n + 1$, and the number of shaded squares found for the 50th term is 101. 	
		0 points	The response shows no understanding of the necessary tasks.	
			0 point sample answer:	
			For example, the response may:	
			<ul style="list-style-type: none"> focus on finding the area or perimeter of the figures. 	
Question 21	Spring 2009			D
Question 1	March 2008			D
Question 15	March 2006			D
Question 29	March 2003			A
Question 1	March 2004			D
Question 9	March 2004			C
Question 38	March 2004			C
Question 27	March 2005			C
Question 2	March 2007			C
Question 18	March 2007			C

Benchmark B

Question 38	March 2008		B
Question 6	March 2006		C
Question 7	March 2005		C

Benchmark C

Question 25	Spring 2009		A								
Question 7	March 2008		D								
Question 41	March 2008		D								
Question 27	March 2004		C								
Question 8	March 2005		B								
Question 28	March 2006	<p>Scoring Guidelines for Item 28:</p> <table border="0"> <thead> <tr> <th>Score Point</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>2 points</td> <td>The focus of the item is to complete a table and to determine an equation that models the data in the table. The response contains a completed table and an equation for the relationship shown in the table.</td> </tr> <tr> <td>1 point</td> <td>The response provides evidence of a partially correct answer and/or solution process. The response shows understanding of some key elements of the task but contains gaps or flaws. For example, the response may: <ul style="list-style-type: none"> • Contain a completed table, but the equation is incorrect or missing. • Contain a correct equation, but the table is incorrect, incomplete or missing. • Identify the correct slope or y-intercept of the equation, with or without the completed table. </td> </tr> <tr> <td>0 points</td> <td>The response indicates inadequate understanding of the task. For example, the response may: <ul style="list-style-type: none"> • Contain a partially completed or incorrectly completed table with no additional work. • Include unrelated statements or work. </td> </tr> </tbody> </table>	Score Point	Description	2 points	The focus of the item is to complete a table and to determine an equation that models the data in the table. The response contains a completed table and an equation for the relationship shown in the table.	1 point	The response provides evidence of a partially correct answer and/or solution process. The response shows understanding of some key elements of the task but contains gaps or flaws. For example, the response may: <ul style="list-style-type: none"> • Contain a completed table, but the equation is incorrect or missing. • Contain a correct equation, but the table is incorrect, incomplete or missing. • Identify the correct slope or y-intercept of the equation, with or without the completed table. 	0 points	The response indicates inadequate understanding of the task. For example, the response may: <ul style="list-style-type: none"> • Contain a partially completed or incorrectly completed table with no additional work. • Include unrelated statements or work. 	
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Benchmark C

Question 44	March 2007	C

Benchmark D

Question 8	Spring 2009	A
Question 43	Spring 2009	D
Question 35	March 2008	D
Question 3	March 2003	D
Question 14	March 2003	A
Question 12	March 2004	D
Question 26	March 2005	D
Question 36	March 2006	B

Benchmark E

Question 33	Spring 2009	D
Question 31	March 2008	A
Question 11	March 2003	D
Question 24	Spring 2006	B
Question 7	March 2004	B
Question 2	March 2005	A
Question 7	March 2007	A

Benchmark F

Question 2	Spring 2009		B
Question 28	Spring 2009	<p>Score Point Description</p> <p>2 points The response contains the correct number of frames rounded up to the nearest whole value and contains clear, correct work/explanation for this answer.</p> <p>1 point The response provides evidence of a partially correct answer and/or solution process. The response shows understanding of some key elements of the task but contains gaps or flaws.</p> <p> 1 point sample answer:</p> <p> For example, the response may:</p> <ul style="list-style-type: none"> • contain the correct response but contains vague, or incomplete work/explanation. OR • contain a minor calculation error but provides a solution with the error. OR • contain some correct work, for example a correct graph of one of the functions, a correct table for one of the functions or valuations for at least two values of x. <p>0 points The response indicates inadequate understanding of the task and the response does not meet the criteria required to earn one point.</p> <p> 0 point sample answer:</p> <p> For example, the response may:</p> <ul style="list-style-type: none"> • provide a number of frames with no support. OR • fail to demonstrate minimal understanding of the task. 	

Benchmark F Continued

Question 11	March 2008	2 points	The focus of the item is to use a table, graph, equation or inequality to solve a word problem. The response determines the maximum number of people (171 or 171.4) the club will be able to serve at a cookout for less than \$500 using one of these techniques.
		1 point	The response provides evidence of a partially correct answer and/or solution process. The response shows understanding of some key elements of the task but contains gaps or flaws. For example, the response may: -Contain a correct equation or inequality but the maximum number of people is missing or incorrect. -Contain an incomplete or partially correct linear graph, but the maximum number of people is missing or incorrect. -Contain an incomplete or partially correct table, but the maximum number of people is missing or incorrect. -Contains the correct answer (171 or 171.4) with incomplete or missing work.
		0 points	The response indicates inadequate understanding of the task and the response does not meet the criteria required to earn one point. For example, the response may: -Be blank or give irrelevant information.
Question 23	March 2003		A
Question 31	March 2003		C
Question 3	March 2004		B
Question 14	March 2004		B
Question 4	March 2005		B
Question 24	March 2007		C

Benchmark G

Question 32	March 2006		A

Benchmark H

Question 17	March 2008		B
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Question 10	March 2006	<p>Scoring Guidelines for Item 10:</p> <table border="0"> <thead> <tr> <th>Score Point</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>2 points</td> <td>The focus of the item is to determine the number of 2-point and 5-point questions on the test. The response indicates that there are 30 two-point and 8 five-point questions with supporting work or explanation.</td> </tr> <tr> <td>1 point</td> <td>The response provides evidence of a partially correct answer and/or solution process. The response shows understanding of some key elements of the task but contains gaps or flaws. For example, the response may: <ul style="list-style-type: none"> • Provide the correct answer with missing or incomplete work. • Provide an incorrect answer based on slightly flawed equations. • Provide correct equations or demonstrate a valid process but contain a calculation error in determining the solution. </td> </tr> <tr> <td>0 points</td> <td>The response indicates inadequate understanding of the task. For example, the response may: <ul style="list-style-type: none"> ▪ Contain one answer (8 or 30) with no correct work. ▪ Include unrelated statements or work. </td> </tr> </tbody> </table>	Score Point	Description	2 points	The focus of the item is to determine the number of 2-point and 5-point questions on the test. The response indicates that there are 30 two-point and 8 five-point questions with supporting work or explanation.	1 point	The response provides evidence of a partially correct answer and/or solution process. The response shows understanding of some key elements of the task but contains gaps or flaws. For example, the response may: <ul style="list-style-type: none"> • Provide the correct answer with missing or incomplete work. • Provide an incorrect answer based on slightly flawed equations. • Provide correct equations or demonstrate a valid process but contain a calculation error in determining the solution. 	0 points	The response indicates inadequate understanding of the task. For example, the response may: <ul style="list-style-type: none"> ▪ Contain one answer (8 or 30) with no correct work. ▪ Include unrelated statements or work.
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Question 18	March 2004	B								

Question 32	March 2004	<p>Scoring Guidelines for Item 32:</p> <table border="0"> <thead> <tr> <th>Score point</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>2 points</td> <td> <p>The task includes two components—writing equations that represent the amount of money in each account for a variable number of weeks and determining the number of weeks until the amount of money in Cameron’s account is greater than that in Quinn’s account. The response contains accurate equations for finding the amount in each account for any number of weeks and indicates Cameron will have more money in his savings account than Quinn in week 9 (or other accurate response such as those provided in sample responses) with clear, accurate work or explanation.</p> </td> </tr> <tr> <td>1 point</td> <td> <p>The response provides evidence of a partial answer and/or solution process. The response has an error(s) or does not carry out all parts of the task.</p> <p>For example, the response may:</p> <p>Provide correct equations for each account with an incorrect answer. Supporting work or explanation is incorrect or missing for the number of weeks until Cameron will have more money in his account than Quinn. OR Find the correct number of weeks with supporting work but does not provide two correct equations. OR Provide one correct equation and one flawed equation, but then determine an accurate number of weeks based upon the equations. OR Provide one correct equation with no additional work. OR Indicate the 9th week without any supporting work or equations.</p> </td> </tr> <tr> <td>0 points</td> <td> <p>The response indicates inadequate or no understanding of the task and/or incorrect use of the key elements or information; e.g., writing an equation to represent a problem situation and finding a value that when used in both equations meets a specified criteria. The response does not meet the criteria required to earn one point.</p> <p>For example, the response may:</p> <p>State an incorrect number of weeks with no supporting work or explanation OR Give two incorrect equations and no other work or explanation. OR Recopy information provided in the item with no work. OR Show no apparent understanding or relationship to the key components in the task or a possible solution process; e.g., finds the sum of the dollar amounts in the item. OR Be blank, or the student writes, “I do not know” or includes unrelated statements or work.</p> </td> </tr> </tbody> </table>	Score point	Description	2 points	<p>The task includes two components—writing equations that represent the amount of money in each account for a variable number of weeks and determining the number of weeks until the amount of money in Cameron’s account is greater than that in Quinn’s account. The response contains accurate equations for finding the amount in each account for any number of weeks and indicates Cameron will have more money in his savings account than Quinn in week 9 (or other accurate response such as those provided in sample responses) with clear, accurate work or explanation.</p>	1 point	<p>The response provides evidence of a partial answer and/or solution process. The response has an error(s) or does not carry out all parts of the task.</p> <p>For example, the response may:</p> <p>Provide correct equations for each account with an incorrect answer. Supporting work or explanation is incorrect or missing for the number of weeks until Cameron will have more money in his account than Quinn. OR Find the correct number of weeks with supporting work but does not provide two correct equations. OR Provide one correct equation and one flawed equation, but then determine an accurate number of weeks based upon the equations. OR Provide one correct equation with no additional work. OR Indicate the 9th week without any supporting work or equations.</p>	0 points	<p>The response indicates inadequate or no understanding of the task and/or incorrect use of the key elements or information; e.g., writing an equation to represent a problem situation and finding a value that when used in both equations meets a specified criteria. The response does not meet the criteria required to earn one point.</p> <p>For example, the response may:</p> <p>State an incorrect number of weeks with no supporting work or explanation OR Give two incorrect equations and no other work or explanation. OR Recopy information provided in the item with no work. OR Show no apparent understanding or relationship to the key components in the task or a possible solution process; e.g., finds the sum of the dollar amounts in the item. OR Be blank, or the student writes, “I do not know” or includes unrelated statements or work.</p>
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Question 38	March 2005	C								

Question 38	March 2007	2 points	The focus of the item is to write a system of linear equations to model a problem situation. The response includes two correct equations, and a solution. (Day 25 or 26 acceptable with the appropriate equations.)
		1 point	The response provides evidence of a partially correct answer and/or solution process. The response shows understanding of some key elements of the task but contains gaps or flaws. For example, the response may: <ul style="list-style-type: none"> • Contain two correct equations but an incorrect solution. • Contain a correct solution with supporting work (e.g. table) with flawed or missing equations. • Provide an incorrect solution based on slightly flawed equations.
		0 points	The response indicates inadequate understanding of the task, and the response does not meet the criteria required to earn one point. For example, the response may: <ul style="list-style-type: none"> • Contain one correct equation with no additional work. • Include unrelated statements or work.

Benchmark I

Question 37	Spring 2009	B
Question 21	March 2008	B
Question 14	March 2005	C

Benchmark J

Question 24	March 2005	<p>Scoring Guidelines for Item 24:</p> <table border="1"> <thead> <tr> <th>Score point</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>2 Points</td> <td> <p>The focus of this item is to determine the approximate date the company will meet the \$1,000 goal based on the current rate of giving. The response indicates a date from the 28th to the 30th of April with supporting work or detailed explanation based on the information provided in the item.</p> </td> </tr> <tr> <td>1 Point</td> <td> <p>The response shows a partial understanding of the solution process or key elements of the task. The response contains gaps or flaws in determining the solution.</p> <p>For example the response may:</p> <p>Indicate the correct date but show no work or the reasoning may be flawed. OR Indicates a date outside the acceptable range resulting from an error in computation. An appropriate solution process is shown or explained. OR Contain a correct method for determining the date, but the date is incorrect or missing.</p> </td> </tr> <tr> <td>0 Points</td> <td> <p>The response fails to provide evidence of minimal understanding of the task.</p> <p>For example the response may:</p> <p>Recopy information provided in the question with no work toward a solution. OR State a date outside the acceptable range with no supporting work or explanation. OR Be blank or the student writes "I do not know" or includes unrelated statements or work.</p> </td> </tr> </tbody> </table>	Score point	Description	2 Points	<p>The focus of this item is to determine the approximate date the company will meet the \$1,000 goal based on the current rate of giving. The response indicates a date from the 28th to the 30th of April with supporting work or detailed explanation based on the information provided in the item.</p>	1 Point	<p>The response shows a partial understanding of the solution process or key elements of the task. The response contains gaps or flaws in determining the solution.</p> <p>For example the response may:</p> <p>Indicate the correct date but show no work or the reasoning may be flawed. OR Indicates a date outside the acceptable range resulting from an error in computation. An appropriate solution process is shown or explained. OR Contain a correct method for determining the date, but the date is incorrect or missing.</p>	0 Points	<p>The response fails to provide evidence of minimal understanding of the task.</p> <p>For example the response may:</p> <p>Recopy information provided in the question with no work toward a solution. OR State a date outside the acceptable range with no supporting work or explanation. OR Be blank or the student writes "I do not know" or includes unrelated statements or work.</p>
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Question 30	March 2007	B								