Ohio Achievement Test
Grade 7 Mathematics

May 2007

Answer Key
and
Scoring Guidelines

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Answer Key
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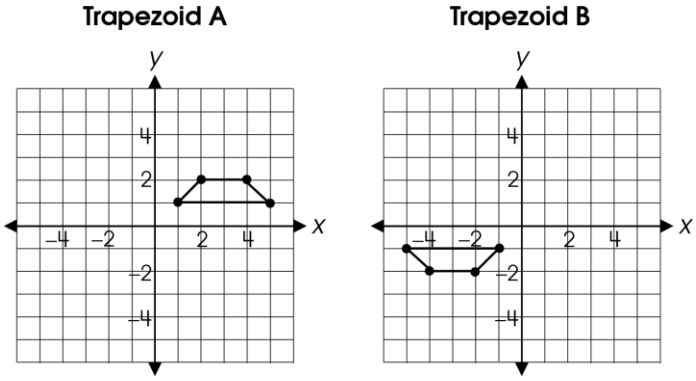
Item No.	Type	Content Standard	Content Standard Benchmark	Key
1	Multiple Choice	Number, Number Sense and Operations	I	A
2	Multiple Choice	Geometry and Spatial Sense	F	C
3	Multiple Choice	Data Analysis and Probability	J	D
4	Multiple Choice	Patterns, Functions, and Algebra	E	Not for Public Release
5	Multiple Choice	Measurement	F	Not for Public Release
6	Short Answer	Geometry and Spatial Sense	H	2 pt rubric
7	Multiple Choice	Number, Number Sense, and Operations	E	Not for Public Release
8	Multiple Choice	Patterns, Functions, and Algebra	L	A
9	Multiple Choice	Geometry and Spatial Sense	G	D
10	Multiple Choice	Number, Number Sense and Operations	E	D
11	Extended Response	Patterns, Functions, and Algebra	B	4 pt rubric
12	Multiple Choice	Geometry and Spatial Sense	J	A
13	Multiple Choice	Measurement	F	Not for Public Release
14	Multiple Choice	Patterns, Functions, and Algebra	J	Not for Public Release
15	Multiple Choice	Geometry and Spatial Sense	G	Not for Public Release
16	Short Answer	Number, Number Sense, and Operations	I	Not for Public Release
7	Multiple Choice	Patterns, Functions, and Algebra	K	B
18	Multiple Choice	Geometry and Spatial Sense	F	Not for Public Release
19	Multiple Choice	Data Analysis and Probability	F	A
20	Multiple Choice	Number, Number Sense and Operations	H	B
21	Extended Response	Data Analysis and Probability	I	Not for Public Release
22 – 27	**Field test questions not used in student score**			
28	Multiple Choice	Measurement	G	A
29	Multiple Choice	Measurement	G	Not for Public Release
30	Multiple Choice	Measurement	A	C
31	Short Answer	Measurement	E	2 pt rubric
32	Multiple Choice	Geometry and Spatial Sense	D	Not for Public Release
33	Multiple Choice	Data Analysis and Probability	I	Not for Public Release
34	Multiple Choice	Data Analysis and Probability	E	B
35	Multiple Choice	Measurement	D	Not for Public Release
36	Short Answer	Number, Number Sense, and Operations	H	Not for Public Release
37	Multiple Choice	Patterns, Functions, and Algebra	K	Not for Public Release
38	Multiple Choice	Data Analysis and Probability	G	Not for Public Release
39	Multiple Choice	Geometry and Spatial Sense	E	Not for Public Release
40	Multiple Choice	Number, Number Sense and Operations	H	D
41	Short Answer	Measurement	C	Not for Public Release
42	Multiple Choice	Data Analysis and Probability	H	B
43	Multiple Choice	Measurement	C	B
44	Multiple Choice	Geometry and Spatial Sense	J	Not for Public Release
45	Multiple Choice	Number, Number Sense, and Operations	I	Not for Public Release

Limited = 0-9; Basic = 10-15; Proficient = 16-28; Accelerated = 29-36; Advanced = 37-50
Multiple Choice = 1 point; Short Answer = 2 points; Extended Response = 4 points

6. A trapezoid has been transformed on the coordinate plane as shown.



In your **Answer Document**, describe two different ways that trapezoid A can be transformed to create trapezoid B. (**2 points**)

Scoring Guidelines

Points	Student Response
2 point	The focus of this task is to identify two different series of transformations (translations, reflections and rotations) of trapezoid A to produce trapezoid B in the coordinate grid. The response provides any two appropriate methods for transforming the trapezoid. **Exemplar Response:** • Trapezoid A can be reflected over the *y*-axis and then over the *x*-axis. It can also be reflected over the *x*-axis and then the *y*-axis. • Trapezoid A can be transformed into Trapezoid B by being rotated 180 degrees around the origin (**or**: The coordinates of trapezoid A are changed to their opposites to make trapezoid B.) or by being reflected over the x-axis and then translated 6 units to the left. • Trapezoid A can be reflected over the $y = x$ line and then over the $y = -x$ line. It can also be translated down 2 units, to the left 2 units, and then rotated 180 degrees around the point (-1,-1). **NOTE**: Any combination of two appropriate transformations is acceptable. **NOTE**: The reverse order is accepted as a second method.
1 point	The response provides partial evidence of identifying two different series of transformations (translations, reflections and rotations) of trapezoid A to produce trapezoid B in the coordinate grid; however, the solution may be incomplete or slightly flawed. **Sample Response:** For example, the response may: • Provide only one appropriate method for transforming the trapezoid. The other transformation is incomplete, missing, or contains a flaw.
0 point	The response provides inadequate evidence of identifying two different series of transformations (translations, reflections and rotations) of trapezoid A to produce trapezoid B in the coordinate grid. The response provides an explanation with major flaws and errors of reasoning. **Sample Response:** For example, the response may: • Provide no correct method for the transformation. • Restate the information provided in the item.

11. Julius has created a number pattern. The first number in his pattern is 1. Then, he says, "the next number in my pattern can always be determined by multiplying the previous number by 2 and then adding 3."

In your **Answer Document**, copy and complete the table showing the first six numbers in Julius' number pattern. (**4 points**)

Term	1	2	3	4	5	6
Number	1					

Use the table to decide if Julius' number pattern changes at a constant rate and explain how you know.

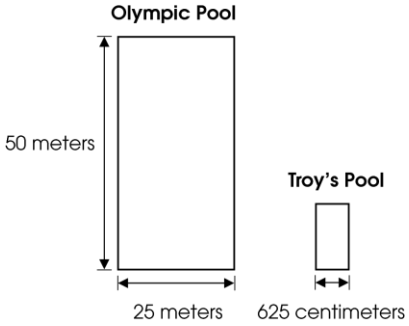
Julius claims that 100 cannot be a number in his pattern. Explain whether Julius' claim is valid and how you know.

Scoring Guidelines

Points	Student Response
4 point	**Sample Correct Responses:** • 2(1) + 3 = 5 • 2(5) + 3 = 13 • 2(13) + 3 = 29 • 2(29) + 3 = 61 • 2(61) + 3 = 125 **AND** The numbers do not increase the same amount each time. **AND** Julius' claim is correct because 100 is an even number and all the numbers in the pattern are odd numbers. There are no terms between 5 and 6 that would give 100. The focus of the task is representing and analyzing patterns, rules and functions with words, tables, graphs and simple variable expressions. The response provides an accurate table showing the first six numbers in Julius' number pattern. The response provides an adequate explanation as to whether the number pattern changes at a constant rate. The response also provides an adequate explanation on whether Julius' claim that 100 cannot be a number in his pattern is valid.
3 point	The response provides clear evidence of representing and analyzing patterns, rules and functions with words, tables, graphs and simple variable expressions; however, the solution is slightly flawed. **Sample Response:** The response may: • Provide a table with a minor calculation error and two adequate explanations. • Provide a correct table and one correct explanation. • Provide two correct explanations, using correct numbers from the table, but does not include a table.
2 point	The response provides partial evidence of representing and analyzing patterns, rules and functions with words, tables, graphs and simple variable expressions; however, the solution is incomplete or flawed. **Sample Response:** The response may: • Provide a correct table showing the first six numbers in Julius' number pattern. • Provide two correct explanations, but does not include a table.

1 point	The response provides minimal evidence of representing and analyzing patterns, rules and functions with words, tables, graphs and simple variable expressions; however, the solution is incomplete or flawed. **Sample Response:** The response may: • Provide a table showing 3 or 4 correct terms in Julius' number pattern. • Provide an adequate explanation as to whether the number pattern changes at a constant rate, but does not include a table. • Provide an adequate explanation as to whether Julius' claim that 100 cannot be a valid number in his pattern, but does not include a table. • Makes an error in the table and makes one valid explanation based on the table.
0 point	The response provides inadequate evidence of understanding of representing and analyzing patterns, rules and functions with words, tables, graphs and simple variable expressions. The response provides major flaws in reasoning or irrelevant information. **Sample Response:** The response may: • State that 100 could end up being in the pattern because the pattern increases every time. • Be blank or make unrelated statements. • Copy information from the stem.

31. An Olympic-size pool is shown.



Troy is building a pool that is proportional to the Olympic-size pool. The width of his pool will be 625 centimeters.

In your **Answer Document**, find the scale factor Troy will use to build his pool. (**2 points**)

Then show or explain how you found the scale factor. Use the scale factor to find the length of Troy's pool. Show or explain how you found the length.

Scoring Guidelines

Points	Student Response
2 point	The focus of this task is solving problems involving proportional relationships and scale factors. The response provides the scale factor for the two pools and work showing how it was found. It gives the length of Troy's pool, with supporting work. **Exemplar Response:** • The scale factor used to build Troy's pool is $\frac{1}{4}$. I found it by comparing the width of Troy's pool (625 cm = 6.25 m) to the width of the Olympic-size pool: $\frac{6.25}{25} = \frac{1}{4}$. To find the length of Troy's pool, I divided the length of the Olympic-size pool by 4: 50 ÷ 4 = 12.5. Troy's pool is 12.5 meters long. • The width of Troy's pool compared to the width of the larger pool is 625:2500 or 1:4. To find the length of Troy's pool: $\frac{625}{2500} = \frac{x}{5000}$, x = 1250 cm. The length of Troy's pool is 1250 centimeters. • 625 cm = 6.25 m. The scale factor of Troy's pool to the Olympic-size pool is $\frac{6.25}{25}$ or $\frac{1}{4}$. The length and width of Troy's pool are $\frac{1}{4}$ the length and width of the larger pool. $\frac{1}{4}$ of 50 is 12.5, so the length of Troy's pool is 12.5 meters. **NOTE:** A scale factor of 4:1 or 4 is acceptable, provided the response shows or states the relationship correctly.
1 point	The response shows partial evidence of solving problems involving proportional relationships and scale factors; however, the solution may be incomplete or slightly flawed. **Sample Response:** The response may: • Provide only the length of Troy's pool, with supporting work but no scale factor. • Provide only the scale factor, with supporting work.

	• Provide the scale factor and length but show no work. • Find an incorrect scale factor but use it correctly to arrive at a length for Troy's pool.
0 point	The response provides inadequate evidence of solving problems involving proportional relationships and scale factors. The response provides major flaws in explanations, or irrelevant information. **Sample Response:** The response may: • State an incorrect length. • Restate the information provided in the item. • Be blank or give irrelevant information.