Ohio Achievement Test
Grade 4 Mathematics

Spring 2009

Answer Key
&
Scoring Guidelines

GRADE 4 MATHEMATICS
ANSWER KEY
Spring 2009

Item No.	Type	Content Standard	Content Standard Benchmark	Answer Key
1	Multiple Choice	Number, Number Sense and Operations	C	B
2	Multiple Choice	Geometry and Spatial Sense	C	Not for Public Release
3	Multiple Choice	Patterns, Functions, and Algebra	C	Not for Public Release
4	Multiple Choice	Data Analysis and Probability	A	C
5	Short Answer	Number, Number Sense and Operations	K	2 pt rubric
6	Multiple Choice	Measurement	A	Not for Public Release
7	Multiple Choice	Number, Number Sense and Operations	E	Not for Public Release
8	Multiple Choice	Patterns, Functions, and Algebra	G	B
9	Multiple Choice	Geometry and Spatial Sense	G	C
10	Short Answer	Data Analysis and Probability	F	2 pt rubric
11	Multiple Choice	Number, Number Sense and Operations	J	B
12	Multiple Choice	Patterns, Functions, and Algebra	F	Not for Public Release
13	Multiple Choice	Data Analysis and Probability	D	C
14	Multiple Choice	Number, Number Sense and Operations	F	A
15	Extended Response	Measurement	D	4 pt rubric
16	Multiple Choice	Geometry and Spatial Sense	E	Not for Public Release
17	Multiple Choice	Data Analysis and Probability	B; C	Not for Public Release
18	Multiple Choice	Number, Number Sense and Operations	A	C
19 – 24	Field Test Items Not Used in Student Score			
25	Multiple Choice	Patterns, Functions, and Algebra	B	Not for Public Release
26	Short Answer	Geometry and Spatial Sense	A	Not for Public Release
27	Multiple Choice	Data Analysis and Probability	F	Not for Public Release
28	Multiple Choice	Number, Number Sense and Operations	J	Not for Public Release
29	Multiple Choice	Patterns, Functions, and Algebra	B	C
30	Multiple Choice	Measurement	C	A
31	Short Answer	Number, Number Sense and Operations	M	Not for Public Release
32	Multiple Choice	Data Analysis and Probability	B	Not for Public Release
33	Multiple Choice	Measurement	C	Not for Public Release
34	Multiple Choice	Number, Number Sense and Operations	I	D
35	Extended Response	Patterns, Functions, and Algebra	A	Not for Public Release
36	Multiple Choice	Measurement	A	Not for Public Release
37	Multiple Choice	Number, Number Sense and Operations	L	C
38	Multiple Choice	Geometry and Spatial Sense	J	B
39	Short Answer	Data Analysis and Probability	E	Not for Public Release
40	Multiple Choice	Number, Number Sense and Operations	B	C
41	Multiple Choice	Patterns, Functions, and Algebra	G	Not for Public Release
42	Multiple Choice	Geometry and Spatial Sense	B	D
43	Multiple Choice	Number, Number Sense and Operations	K	Not for Public Release
44	Short Answer	Geometry and Spatial Sense	F	2 pt rubric
45	Multiple Choice	Data Analysis and Probability	B	C
46	Multiple Choice	Number, Number Sense and Operations	D	A

Limited = 0-16; Basic = 17-23; Proficient = 24-34; Accelerated = 35-41; Advanced = 42-52
Multiple Choice = 1 point; Short Answer = 2 points; Extended Response = 4 points

5. A fourth-grade class has three hamsters and five ducklings. Each hamster has four legs. Each duckling has two legs. How many legs do the eight animals have in all? (2 points)
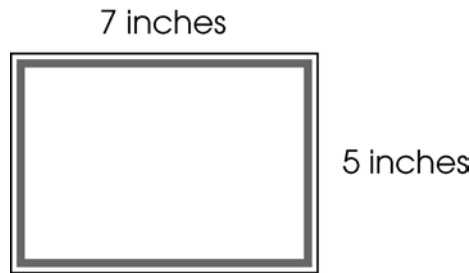
Scoring Guidelines

Points	Student Response
2	Sample Correct Responses: • (4 + 4 + 4) + (2 + 2 + 2 + 2 + 2) = 22 • (4 × 3) + (2 × 5) = 12 + 10 = 22. • Draws a picture showing three figures with 4 legs and five figures with two legs and writes that the total number of legs is 22. • 22 legs. I multiplied the number of hamsters by 4 and then the number of ducklings by two and added them together. The focus of this task is to provide evidence of solving a multi-step problem involving computations with whole numbers. The response correctly identifies the total number of legs and provides adequate support to show how the answer was found.
1	The response provides partial evidence of solving a multi-step problem; however, the solution may be incomplete or slightly flawed. Sample response • State that the answer is 22 legs, but not show any work. • Show a correct procedure for finding the answer, but not correctly determine the number of legs. E.g., 4 × 3 = 12. 5 × 2 = 10. • Indicate an incorrect answer based on a calculation error; however, shows an appropriate procedure. E.g., 4 × 3 = 7, 5 × 2 = 10, 7 + 10 = 17.
0	The response provides inadequate evidence of how to solve multi-step problems involving computations with whole numbers. The response will provide major flaws or irrelevant information. Sample response: • State that 3 + 5 + 4 + 2 = 14. • Be blank or state unrelated statements. • Recopy information from the stem.

10. Phil has a bag with 1 red tile, 12 yellow tiles, 1 blue tile, and 6 green tiles. He draws one tile from the bag without looking. List the colors in the order of the likelihood of Phil's drawing each of the colored tiles. (2 points)

Scoring Guidelines

Points	Student Response
2	Sample Correct Responses: 	Y	Y	Y
Y	Y	Y
Y	Y	Y		G	G	G
Y	Y	Y		G	G	G		R		B | Yellow, Green, Red, Blue • Yellow, Green, Red and Blue. Red and blue are unlikely because there is only one of each; then green because there are 6 green tiles; and then yellow is most likely because there are the most yellow tiles. • Yellow, Green, Red, Blue. The highest likelihood is picking yellow, 12/20, then green, 6/20, and then both red and blue, 1/20. The focus of the task is to provide evidence of representing the likelihood of possible outcomes for chance situations. The response provides a list of colors in order of likelihood **AND** an explanation, numbers or diagram comparing the likelihood of drawing a tile using adequate mathematical language.
1	The response provides partial evidence of representing the likelihood of possible outcomes for chance situations; however the solution may be incomplete or slightly flawed. Sample response: • State that the order of likelihood is yellow, green, then red and blue, but not provide an adequate explanation. • Place the likelihood of drawing each color in an incorrect order, but have an explanation or diagram that supports the stated order.
0	The response provides inadequate evidence of representing the likelihood of possible outcomes for chance situations. The response provides major flaws in reasoning or irrelevant information. Sample response: • Place the colors in a random order with no or a highly flawed explanation. • Be blank or state unrelated statements. • Recopy information from the stem.

15. Karen is putting ribbon around the outside edge of a rectangular note card as shown. How much ribbon does Karen need to go around the card? (4 points)

7 inches

5 inches

Karen wants to make another rectangular-shaped card. She has 18 inches of ribbon left over to put around the outside edge of this card. What are the length and width of a card that Karen could make to use all the ribbon?
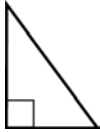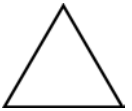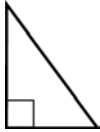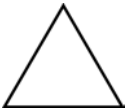
Scoring Guidelines

Points	Student Response
4	Sample Correct Responses: • She needs 24 inches of ribbon. 5 + 5 + 7 + 7 = 24. 5 inches by 4 inches. I picked one side to be 5 inches so there was 8 inches of ribbon left, so then the other side would be 4 inches. • Twenty four inches of ribbon is needed. 5 × 2 = 10, 7 × 2 = 14, 10 + 14 = 24. length = 8, width = 1. 8 + 8 + 1 + 1 = 18 inches. The focus of this task is using a strategy to find perimeter of a rectangle. The response provides the correct perimeter with an appropriate explanation or calculations and correct dimensions for another card with supporting work or an adequate explanation. **NOTE**: There are an infinite number of cards that Karen could make, and correct measurements include 1 inch x 8 inches, 2 inches x 7 inches, 3 inches x 6 inches, and 4 inches x 5 inches.
3	The response provides evidence of using a strategy to find perimeter of a rectangle; however, the response may contain a slight flaw or a vague explanation. Sample response: • Provide the correct perimeter with appropriate work and state the dimensions of another card she could make but fail to show work or provide an explanation for another card. • Provide the correct perimeter with appropriate work and show an appropriate strategy for finding the dimensions of another card, but fail to correctly state both the length and the width of another card.
2	The response shows partial evidence of using a strategy to find perimeter of a rectangle; however, the response is incomplete and/or contains minor flaws. Sample response: • Only provide the perimeter of the card with work or an adequate explanation. • Find the perimeter of the card and find the dimensions of another card, but fail to provide work or an explanation for either part.
1	The response provides minimal evidence of using a strategy to find perimeter of a rectangle. The response has major flaws and errors in reasoning. Sample response: • State the perimeter of the original card only. • Only provide a correct strategy for finding the perimeter.

0	The response provides inadequate evidence of using a strategy to find perimeter of a rectangle. The response provides major flaws in explanations or irrelevant information. Sample response: • State that she needs 12 inches of ribbon. • Restate the information provided in the item. • Be blank or give irrelevant information.

44. Dakota was asked to draw a right equilateral triangle. (2 points)

Scoring Guidelines

Points	Student Response
2	Sample Correct Responses: • A right triangle looks like this . An equilateral triangle looks like this . It doesn't have a right angle. • It's not possible to draw a right equilateral triangle. The side opposite a right angle is longer than the other two sides. An equilateral triangle has all sides equal. The focus of this task is using attributes to determine if a right equilateral triangle can be drawn. The response uses words or a drawing to show why a right triangle cannot be equilateral.
1	The response shows partial evidence of using attributes to determine if a right equilateral triangle can be drawn; however, the response may be incomplete or slightly flawed. **1 point sample answer** For example, the response may: • Provide an adequate explanation of an equilateral and/or right triangle without determining whether a right equilateral triangle can be drawn.
0	The response provides inadequate evidence of using attributes to determine if a right equilateral triangle can be drawn. The response provides a solution with major flaws or errors in reasoning. **0 point sample answer** For example, the response may: • State that it is possible, but give no explanation. • Restate the information provided in the item. • Be blank or give irrelevant information.

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