Ohio Achievement Assessment
Grade 4 Mathematics

Spring 2010

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	A	B
2	Multiple choice	Patterns, functions and algebra	B	D
3	Multiple choice	Data analysis and probability	B	C
4	Multiple choice	Geometry and spatial sense	J	Not for public release
5	Short answer	Measurement	B	2 pt rubric
6	Multiple choice	Number, number sense and operations	E	B
7	Multiple choice	Data analysis and probability	F	Not for public release
8	Multiple choice	Patterns, functions and algebra	A	C
9	Multiple choice	Measurement	D	Not for public release
10	Short answer	Geometry and spatial sense	F	Not for public release
11	Multiple choice	Number, number sense and operations	J	Not for public release
12	Multiple choice	Measurement	A	D
13	Multiple choice	Patterns, functions and algebra	G	A
14	Multiple choice	Number, number sense and operations	I	Not for public release
15	Extended response	Data analysis and probability	C	Not for public release
16	Multiple choice	Number, number sense and operations	M	D
17	Multiple choice	Geometry and spatial sense	B; C;	Not for public release
18	Multiple choice	Patterns, functions and algebra	C	A
19	Multiple choice	Data analysis and probability	H	Not for public release
20	Short answer	Number, number sense and operations	L	Not for public release
21	Multiple choice	Geometry and spatial sense	B	Not for public release
22 - 27	**Field Test Items Not Used in Student Score**			
28	Multiple choice	Number, number sense and operations	J	Not for public release
29	Multiple choice	Patterns, functions and algebra	A	Not for public release
30	Multiple choice	Number, number sense and operations	K	Not for public release
31	Short answer	Geometry and spatial sense	E	Not for public release
32	Multiple choice	Measurement	A	A
33	Multiple choice	Data analysis and probability	D	Not for public release
34	Multiple choice	Patterns, functions and algebra	E	C
35	Extended response	Number, number sense and operations	D	4 pt rubric
36	Multiple choice	Measurement	D	Not for public release
37	Multiple choice	Data analysis and probability	A	C
38	Multiple choice	Geometry and spatial sense	D	D
39	Short answer	Patterns, functions and algebra	F	2 pt rubric
40	Multiple choice	Measurement	C	C
41	Multiple choice	Number, number sense and operations	L	C
42	Multiple choice	Data analysis and probability	B	Not for public release
43	Multiple choice	Geometry and spatial sense	G	A
44	Short answer	Measurement	D	2 pt rubric
45	Multiple choice	Number, number sense and operations	E	Not for public release
46	Multiple choice	Patterns, functions and algebra	A	Not for public release

Limited = 0-16; Basic = 17-24; Proficient = 25-34; Accelerated = 35-40; Advanced = 41-52
Multiple Choice = 1 point; Short Answer = 2 points; Extended Response = 4 points

5. Kim needs to measure a quart of water to make some juice.
She has two different-sized measuring containers. Container A holds one cup and Container B holds one pint.

Which container, A or B, will she have to fill the fewest times to measure the water she needs? _____

Use pictures, numbers or words to explain how you decided between the containers.

Scoring Guidelines

Points	Student Response
2 point	**Exemplar Response:** • Kim will have to fill Container B the fewest times. A pint holds more water than a cup. • Kim will have to fill Container B the fewest times. She will need only 2 pints to get a quart but she would need 4 cups. The focus of the task is relating the number of units to the size of the units used to measure an object. The response correctly states the container that would be filled the fewest times with an adequate explanation.
1 point	The response shows partial evidence of relating the number of units to the size of the units used to measure an object; however, the response may be incomplete or slightly flawed. **Sample Response**: • State that she will have to fill Container B the fewest number of times but provide an inadequate explanation with mathematical reasoning. • State that a pint is bigger than a cup but fail to state that she should use Container B.
0 point	The response provides inadequate evidence of relating the number of units to the size of the units used to measure an object. The response has major flaws or errors in reasoning. **Sample Response**: • State Container A or B only. • Restate the information provided in the stem. • Be blank or give irrelevant information.

35. Tim's grocery store sells different-sized packages of cheese. Some packages and their weights are shown.

Package A	$\frac{1}{3}$ pound
Package B	$\frac{3}{4}$ pound
Package C	1 pound
Package D	$\frac{1}{2}$ pound
Package E	$\frac{1}{4}$ pound
Package F	$\frac{2}{3}$ pound

Tim wants to arrange the packages of cheese from the package that weighs the least to the package that weighs the most.

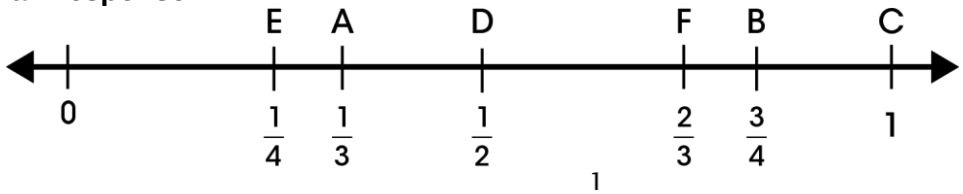
Put the weights on the number line in order from least to greatest.

A scale at the store shows that one of the packages weighs 0.5 pounds.

Which package has a weight of 0.5 pounds? _____

Explain how you decided which package weighs 0.5 pounds.

Scoring Guidelines

Points	Student Response
4 point	**Exemplar Response:**  The Package D weighs 0.5 pounds because $\frac{1}{2}$ is the same as 0.5. The focus of this task is ordering fractions on a number line and determining which fraction is equivalent to a given decimal. The response provides an adequate placement of all six weights and provides the correct half-pound package with an adequate explanation. **NOTE**: The weights do not have to be placed in their exact locations on the number line, but they must be arranged in the correct sequential order.

3 point	The response provides evidence of ordering fractions on a number line and determining which fraction is equivalent to a given decimal; however, the solution may contain a slight error, a flaw or a vague explanation. **Sample Response**: • Provide the correct placement of only four or five weights and the correct half-pound package with an adequate explanation.
2 point	The response provides partial evidence of ordering fractions on a number line and determining which fraction is equivalent to a given decimal; however, the solution is incomplete and/or contains minor flaws. **Sample Response**: • Only provide the correct placement of all six weights. • Provide the correct half-pound package with an adequate explanation.
1 point	The response provides minimal evidence of ordering fractions on a number line and determining which fraction is equivalent to a given decimal. The response has major flaws and errors in reasoning. **Sample Response**: • Only provide the correct placement of four or five weights. • Only provide the correct half-pound package without supporting work.
0 point	The response provides inadequate evidence of ordering fractions on a number line and determining which fraction is equivalent to a given decimal. The response provides major flaws in explanations or irrelevant information. **Sample Response**: • State that package 3, or the 1 pound package, is the biggest. • Restate the information provided in the item. • Be blank or give irrelevant information.

39. Each week, Jane puts two dollars ($2) into her bank account and her mother puts in an additional dollar ($1).
Construct a table to show the total amount of money Jane will have in her bank account after 1, 2, 3, and 4 weeks.

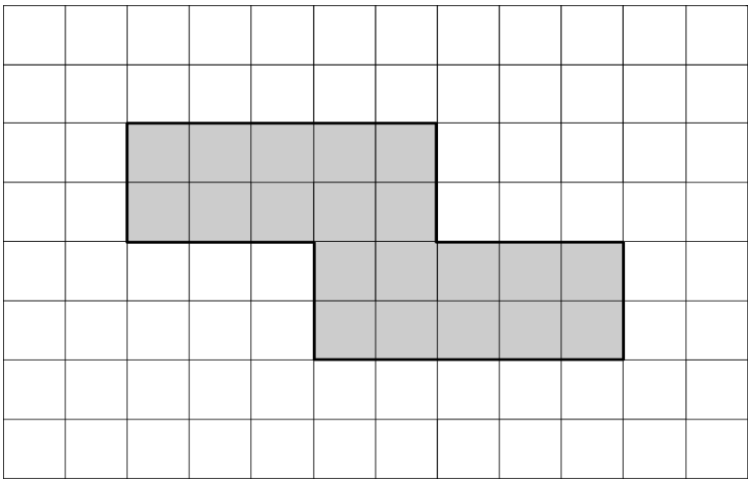
Scoring Guidelines

<table>
<tr><th>Points</th><th>Student Response</th></tr>
<tr><td>2 point</td><td>Exemplar Response:
<table>
<tr><th>Week</th><th>Amount Jane puts in</th><th>Amount her mother puts in</th><th>Total Amount</th></tr>
<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>
</table>
<table>
<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>
</table>
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.</td></tr>
<tr><td>1 point</td><td>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.

Sample Response:
• Provide a table with a calculation error that is carried through.
• Provide correct total for each week but fail to display the data in a table.
• Provide an amount for each week ($3) and show the cumulative total ($12).</td></tr>
<tr><td>0 point</td><td>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.

Sample Response:
• Show one or two values for her bank account balance, but contain no table.
• Restate the information provided in the item.
• Be blank or give irrelevant information.</td></tr>
</table>

44. Antonio made the shape shown on the centimeter grid.



What is the perimeter of Antonio's shape? _____

Explain how you can find the perimeter of Antonio's shape.

Scoring Guidelines

Points	Student Response
2 point	**Sample Response** : • 24. I counted the lines all around the shape. • 5 + 2 + 3 + 2 + 5 + 2 + 3 + 2 = 24. I counted the lines to find how long each side was and then added them together. The focus of this task is to provide evidence of developing and using strategies to find perimeter. The response correctly finds the perimeter and provides an adequate explanation that reveals an understanding of how perimeter is found.
1 point	The response provides partial evidence of developing and using strategies to find perimeter; however, the solution is incomplete or slightly flawed. **Sample Response**: • State the correct answer of 24 only. • State an incorrect perimeter due to a counting or calculation error; however, uses and explains an appropriate procedure for finding perimeter.
0 point	The response provides inadequate evidence of developing and using an appropriate strategy to find perimeter. The response will provide major flaws in reasoning or irrelevant information. **Sample Response**: • State that the perimeter is 20 squares (area) and that they counted the number of squares in the figure. • Be blank or state unrelated statements. • Recopy information from the stem.