# Ohio Achievement Assessment
# Grade 7 Mathematics

# Spring 2010

# Answer Key
# and
# Scoring Guidelines

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| Item No. | Type | Content Standard | Content Standard Benchmark | Key |
|---|---|---|---|---|
| 1 | Multiple choice | Geometry and spatial sense | J | Not for public release |
| 2 | Multiple choice | Patterns, functions and algebra | E | Not for public release |
| 3 | Multiple choice | Measurement | A | B |
| 4 | Multiple choice | Patterns, functions and algebra | M | D |
| 5 | Multiple choice | Number, number sense and operations | I | C |
| 6 | Short answer | Data analysis and probability | B | Not for public release |
| 7 | Multiple choice | Geometry and spatial sense | G | D |
| 8 | Multiple choice | Data analysis and probability | F | Not for public release |
| 9 | Multiple choice | Number, number sense and operations | I | Not for public release |
| 10 | Multiple choice | Measurement | D | C |
| 11 | Short answer | Patterns, functions and algebra | B | 2 pt rubric |
| 12 | Multiple choice | Measurement | G | Not for public release |
| 13 | Multiple choice | Data analysis and probability | E | B |
| 14 | Multiple choice | Geometry and spatial sense | F | Not for public release |
| 15 | Multiple choice | Number, number sense and operations | I | C |
| 16 | Extended response | Geometry and spatial sense | I | 4 pt rubric |
| 17 | Multiple choice | Data analysis and probability | H | C |
| 18 | Multiple choice | Measurement | C | B |
| 19 | Multiple choice | Number, number sense and operations | I | Not for public release |
| 20 | Multiple choice | Patterns, functions and algebra | I | C |
| 21 | Short answer | Data analysis and probability | F | 2 pt rubric |
| **22 - 27** | **Field Test Items Not Used in Student Score** | | | |
| 28 | Multiple choice | Measurement | A | Not for public release |
| 29 | Multiple choice | Patterns, functions and algebra | J | B |
| 30 | Multiple choice | Geometry and spatial sense | H | Not for public release |
| 31 | Extended response | Number, number sense and operations | H | Not for public release |
| 32 | Multiple choice | Measurement | E | D |
| 33 | Multiple choice | Data analysis and probability | E | Not for public release |
| 34 | Multiple choice | Geometry and spatial sense | D | Not for public release |
| 35 | Multiple choice | Number, number sense and operations | E | Not for public release |
| 36 | Short answer | Patterns, functions and algebra | A | Not for public release |
| 37 | Multiple choice | Data analysis and probability | H | Not for public release |
| 38 | Multiple choice | Measurement | F | B |
| 39 | Multiple choice | Patterns, functions and algebra | F | Not for public release |
| 40 | Multiple choice | Number, number sense and operations | I | B |
| 41 | Short answer | Measurement | D | 2 pt rubric |
| 42 | Multiple choice | Patterns, functions and algebra | H | Not for public release |
| 43 | Multiple choice | Measurement | C | Not for public release |
| 44 | Multiple choice | Geometry and spatial sense | J | A |
| 45 | Multiple choice | Number, number sense and operations | E | C |

Limited = 0-10; Basic = 11-16; Proficient = 17-30; Accelerated = 31-37; Advanced = 38-50
Multiple Choice = 1 point; Short Answer = 2 points; Extended Response = 4 points

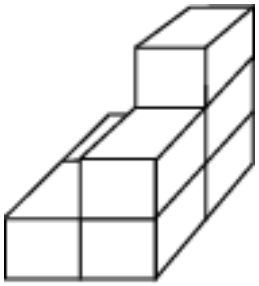
**11.** Jasmine wants to rent a bike while she is on vacation. The rental fee is $8.00 plus an additional $2.50 for every hour the bike is rented.

In your **Answer Document**, construct a table to show the total cost of renting a bike for 1, 2, 3, 4, and 5 hours. Then, write an expression that Jasmine can use to find the total cost of renting a bike for any number of hours. (**2 points**)

**Scoring Guidelines**

<table>
<tr><th>Points</th><th>Student Response</th></tr>
<tr><td>2 point</td><td>Exemplar Response:<br>•<br><table><tr><th>Hours</th><th>Total Cost</th></tr><tr><td>1</td><td>$10.50</td></tr><tr><td>2</td><td>$13.00</td></tr><tr><td>3</td><td>$15.50</td></tr><tr><td>4</td><td>$18.00</td></tr><tr><td>5</td><td>$20.50</td></tr></table>The expression is $8 + $2.50h. h = number of hours.<br>NOTE: The table may also start at 0 hours with a total cost of $8.00.<br><br>The focus of this task is representing a rule with a table and a simple variable expression. The response provides a table showing the total cost of renting a bike for 1, 2, 3, 4, and 5 hours and an appropriate expression that can be used to find the total cost for any number of hours.</td></tr>
<tr><td>1 point</td><td>The response shows partial evidence of representing a rule with a table and a simple variable expression; however, the response may be incomplete or slightly flawed.<br><br>Sample Response<br>The response may:<br>• Provide a correct table showing the total cost for 1, 2, 3, 4, and 5 hours, but fail to provide an appropriate expression.<br>• Provide an appropriate expression with an incomplete or flawed table.</td></tr>
<tr><td>0 point</td><td>The response provides inadequate evidence of representing a rule with a table and a simple variable expression. The response provides major flaws in explanations or irrelevant information.<br><br>Sample Response:<br>The response may:<br>• Provide an incomplete or flawed table with an incorrect rule or no rule.<br>• Restate the information provided in the item.<br>• Be blank or give irrelevant information.</td></tr>
</table>

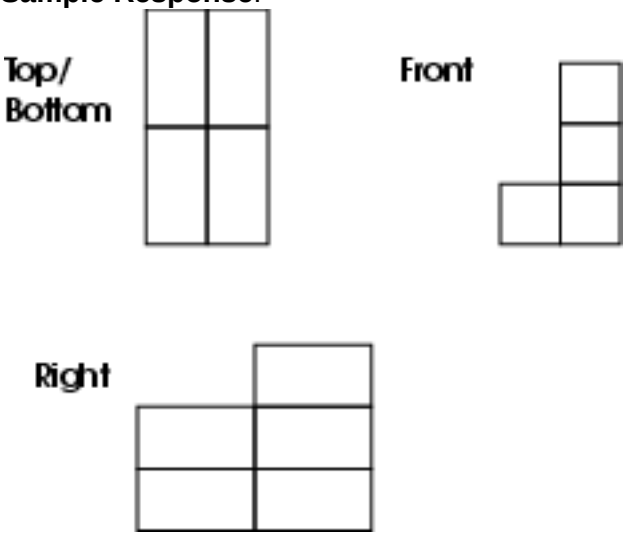
**16.** Seven blocks are arranged below.



Front View

In your **Answer Document**, draw this figure from three different perspectives: from the front, from the top, and from the right side. Label each drawing.
Now draw the bottom view of this figure and compare it to the top view. (**4 points**)

**Scoring Guidelines**

| Points | Student Response |
|---|---|
| 4 point | **Sample Response**:<br>  <br><br>**NOTE**: response may also show two separate drawings of top and bottom, accurately labeled, or an explanation stating that the "top and bottom views are the same."<br>The focus of the task is drawing representations of three-dimensional geometric objects from different views. The response provides appropriate drawings from three different perspectives: front, top, and right side with each perspective labeled.<br>**AND**<br>The response also provides a drawing of the bottom view and compares it to the top view. |

| | |
|---|---|
| 3 point | The response provides clear evidence of drawing representations of three-dimensional geometric objects from different views; however, the solution is slightly flawed.<br><br>**Sample Response:**<br>The response may:<br>• Show both the top and bottom drawn correctly and **EITHER** the front or right drawn correctly. It includes a statement about the top and the bottom looking the same.<br>• Show the top and just one side drawn correctly, and include a statement about the bottom and the top looking the same.<br>• Show all perspectives correctly with no conclusion. |
| 2 point | The response provides partial evidence of drawing representations of three-dimensional geometric objects from different views; however, the solution is incomplete or slightly flawed.<br><br>**Sample Response:**<br>The response may:<br>• Show partial drawings from three different perspectives with the top drawn incorrectly with the right and front both correct. No comparison is made of the top and the bottom view.<br>• Show partial drawings from three different perspectives with the bottom correct but the response indicates that the top and bottom do **NOT** look the same when drawn in two-dimensions.<br>• Show the top, right and front views drawn correctly; but, the bottom is incorrect and the response indicates that the top and bottom do **NOT** look the same when drawn in two-dimensions.<br>• Show the top and bottom views drawn correctly with a correct conclusion **BUT** right and front views are both incorrect. |
| 1 point | The response provides partial evidence of drawing representations of three-dimensional geometric objects from different views; however, the solution is incomplete or flawed.<br><br>**Sample Response:**<br>The response may:<br>• Show one or two correctly drawn perspectives without a conclusion.<br>• Indicate that the top and bottom look the same, but there is no drawing of any of the perspectives. |
| 0 point | The response provides inadequate evidence of drawing representations of three-dimensional geometric objects from different views. The response provides major flaws in reasoning or irrelevant information.<br><br>**Sample Response:**<br>The response may:<br>• Be blank or make unrelated statements.<br>• Recopy information from the stem. |

**21.** The number of flowers on each of 8 bushes is shown in the table.

| Bushes | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| Number of Flowers | 18 | 18 | 21 | 21 | 24 | 26 | 26 | 38 |

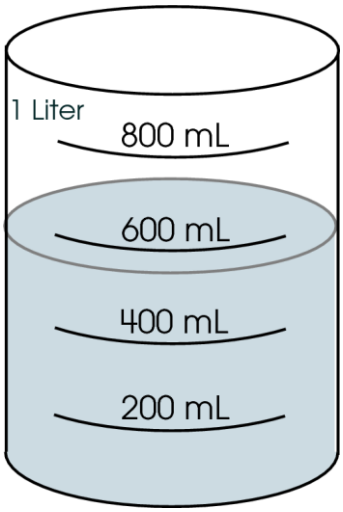
In your **Answer Document**, find the mean number of flowers per bush and explain how the mean would change if the bush with 38 flowers is not included. Use mathematics to support your explanation. (**2 points**)

**Scoring Guidelines**

| Points | Student Response |
|---|---|
| 2 point | **Sample Response**:<br><br>$\frac{18+18+21+21+24+26+26+38}{8}=24$<br>$\frac{18+18+21+21+24+26+26}{7}=22$<br>Not including it would make the mean number of flowers go down.<br>• I added up all the numbers to get 192 and divided by 8 to get the mean number of flowers per bush to be 24. 38 is much higher than all of the other numbers of flowers so including it can throw the data off. Not including it would make the mean number of flowers go down.<br>• The mean is 24 with the bush and 22 without. The mean decreases by 2 flowers.<br><br>The focus of the task is analyzing a set of data and determining the mean and to describe how the inclusion or exclusion of outliers will affect this measure. The response indicates the mean number of flowers per bush **AND** explains how the mean would change if one of the data is not included. |
| 1 point | The response provides partial evidence of analyzing data, determining the mean and describing the effect of outliers; however, the solution is incomplete or slightly flawed.<br><br>**Sample Response:**<br>The response may:<br>• Include calculation errors in determining the mean but provide work or an adequate explanation of how the mean would change.<br>• State that 192 ÷ 8 = 24 and 154 ÷ 8 = 19.25.<br>• The bush with 38 flowers has more flowers than most of the other bushes. If it is not included then the mean will decrease.<br>State that the mean with all bushes is 24, and/or the mean without the highest number of flowers is 22. |

| | |
|---|---|
| 0 point | The response provides inadequate evidence of analyzing data, determining the mean and describing the effect of outliers. The response provides major flaws in reasoning or irrelevant information.<br><br>**Sample Response:**<br>The response may:<br>• Find the median instead of the mean.<br>• State that the mean is 22.5 because (21 + 24)/2 = 22.5. Without the bush with 38 flowers the mean is 21 because then the bush with 21 flowers is in the middle.<br>• Be blank or make unrelated statements.<br>• Copy information from the stem. |

**41.** Brian poured some water into the beaker shown.




In your **Answer Document**, estimate the amount of water Brian has in the beaker, to the nearest 50 mL. Explain your reasoning for your estimate. (**2 points**)

**Scoring Guidelines**

| Points | Student Response |
|---|---|
| 2 point | **Exemplar Response:**<br>• It is about 550mL because 500 is halfway between 400 and 600 and the water line is about halfway between 500 and 600.<br>• The water line is about three-fourths of the way to 600 and each quarter is about 50 mL, so 3 × 50 is 150 and 150 + 400 is about 550 mL.<br><br>The focus of this task is estimating a measurement to a greater degree of precision than the tool provides. The response provides an estimate for the amount of water and a written explanation. |
| 1 point | The response provides partial evidence of estimating a measurement to a greater degree of precision than the tool provides; however, the solution may be incomplete or slightly flawed.<br>**Sample Response**:<br>The response may:<br>• Provide a correct estimate, but the explanation is incomplete or missing.<br>• Provide a written explanation that is appropriate but does not identify an acceptable estimation. |
| 0 point | The response provides inadequate evidence of estimating a measurement to a greater degree of precision than the tool provides. The response provides an explanation with major flaws and errors of reasoning.<br>**Sample Response**:<br>The response may:<br>• Provide an unreasonable estimate;<br>• Restate the information provided in the item;<br>• Be blank or give irrelevant information. |