Sample Items 10–13

Item 10

Selected-Response

The diagram represents the floor of a rectangular garage.

[Diagram of a rectangular grid with each square representing 1 square meter]

What is the TOTAL area of the floor?

A. 8 square meters  
B. 15 square meters  
C. 16 square meters  
D. 20 square meters

Item 11

Selected-Response

Pam had 3 bags of marbles. There were 6 marbles in each bag. Pam gave 5 marbles to her friend.

How many marbles did Pam have left?

A. 13  
B. 14  
C. 18  
D. 23
Item 1.2

Constructed-Response

Ben counted the number of birds he saw in his yard over the weekend. The bar graph shows his data.

How many more red birds than yellow birds did Ben count? Explain how you found your answer.
Item 13

Extended Constructed-Response

Study the multiplication chart.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
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<tbody>
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<td>15</td>
<td>18</td>
<td>21</td>
<td>24</td>
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<td>30</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>16</td>
<td>20</td>
<td>24</td>
<td>28</td>
<td>32</td>
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<td>40</td>
</tr>
<tr>
<td>5</td>
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<td>15</td>
<td>20</td>
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<td>30</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>50</td>
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<tr>
<td>6</td>
<td>6</td>
<td>12</td>
<td>18</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>42</td>
<td>48</td>
<td>54</td>
<td>60</td>
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<td>7</td>
<td>14</td>
<td>21</td>
<td>28</td>
<td>35</td>
<td>42</td>
<td>49</td>
<td>56</td>
<td>63</td>
<td>70</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td>32</td>
<td>40</td>
<td>48</td>
<td>56</td>
<td>64</td>
<td>72</td>
<td>80</td>
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<tr>
<td>9</td>
<td>9</td>
<td>18</td>
<td>27</td>
<td>36</td>
<td>45</td>
<td>54</td>
<td>63</td>
<td>72</td>
<td>81</td>
<td>90</td>
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<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>

Part A  Describe a pattern found in the 5 column. Write your answer in the space provided.

Part B  What would be the next number in the 5 column? Explain how you found your answer. Write your answer in the space provided.

Part C  Explain why all the products in the 8 row are even. Write your answer in the space provided.

Go to the next page to finish Item 13.
Go to the next page to finish Item 13.
Item 13. Continued.

Part C
Sample Items 14–18

Item 14

Selected-Response

Which one of these quadrilaterals ALWAYS has four sides of equal length?

A. rectangle  
B. square  
C. trapezoid  
D. parallelogram

Item 15

Selected-Response

A wall is covered in square tiles as shown in the diagram.

Which expression shows how to find the area of this wall?

A. 4 + 5  
B. 5 × 5  
C. 5 × 4  
D. 4 + 5 + 4 + 5
Item 16

Selected-Response

A rectangular board has an area of 1 square foot. Sam cuts the board into 4 parts that have equal areas. He uses one part to make a birdhouse. What is the area of the part that Sam uses?

A. $\frac{1}{4}$ square foot
B. $\frac{3}{4}$ square foot
C. $1\frac{1}{4}$ square feet
D. $\frac{4}{1}$ square feet

Item 17

Multi-Select Technology-Enhanced

Mrs. Pike has pieces of paper that are different colors. Each piece of paper is a rectangle. The table shows the length and width for the different colors of paper.

(Area = Length $\times$ Width)

<table>
<thead>
<tr>
<th>Color</th>
<th>Width (inches)</th>
<th>Length (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>yellow</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>white</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>brown</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>green</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>orange</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>red</td>
<td>12</td>
<td>3</td>
</tr>
</tbody>
</table>

Select THREE colors of paper that each have an area of 36 square inches.

A. yellow
B. white
C. brown
D. green
E. orange
F. red
Item 18
Mult-Part Technology-Enhanced

Part A
A city plans to build a new rectangular-shaped park. The perimeter of the park will be 940 meters. The width of the park will be 300 meters. (Perimeter = Length + Width + Length + Width)

What will be the length, in meters, of the new park?

A. 170
B. 340
C. 600
D. 640

Part B
The old city park is rectangular. It has a length of 350 meters. It has a width of 125 meters.

What is the perimeter, in meters, of the old city park?

A. 250
B. 475
C. 700
D. 950
<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>MGSE3.MD.6</td>
<td>1</td>
<td>B</td>
<td>The correct answer is choice (B) 15 square meters. There are 3 rows of 5 squares. Choice (A) is incorrect because it is the sum of two sides. Choice (C) is incorrect because it is the perimeter, not the area. Choice (D) is incorrect because it would mean an extra row of squares was added to the rectangle.</td>
</tr>
<tr>
<td>11</td>
<td>MGSE3.OA.8</td>
<td>2</td>
<td>A</td>
<td>The correct answer is choice (A) 13 marbles. First, 3 groups of 6 were multiplied to find a total of 18 marbles. Then 5 marbles were subtracted from the total. Choice (B) is incorrect because the answer is found by adding 3, 6, and 5. Choice (C) is incorrect because after the total number of marbles in the three bags was found, 5 marbles needed to be subtracted from the product. Choice (D) is incorrect because after the total number of marbles in the three bags was found, the 5 marbles needed to be subtracted from, not added to, 18.</td>
</tr>
<tr>
<td>12</td>
<td>MGSE3.MD.3</td>
<td>2</td>
<td>N/A</td>
<td>See scoring rubric and sample response on page 123.</td>
</tr>
<tr>
<td>13</td>
<td>MGSE3.OA.9</td>
<td>3</td>
<td>N/A</td>
<td>See scoring rubric and sample response beginning on page 124.</td>
</tr>
<tr>
<td>14</td>
<td>MGSE3.G.1</td>
<td>1</td>
<td>B</td>
<td>The correct answer is choice (B) square. A square is a quadrilateral, a polygon with four sides, and all of the sides have the same length. Choices (A) and (C) are incorrect because all sides do not have to be equal. Choice (D) is incorrect because only the opposite sides need to be equal.</td>
</tr>
<tr>
<td>15</td>
<td>MGSE3.MD.7</td>
<td>2</td>
<td>C</td>
<td>The correct answer is choice (C) 5 x 4. This expression shows that the area of the rectangle is the product of the length and width. Choice (A) is incorrect because it shows an addition problem. Choice (B) is incorrect because it shows an incorrect expression. Choice (D) is incorrect because it shows how to find the figure’s perimeter, not its area.</td>
</tr>
<tr>
<td>Item</td>
<td>Standard/Element</td>
<td>DOK Level</td>
<td>Correct Answer</td>
<td>Explanation</td>
</tr>
<tr>
<td>------</td>
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</tr>
<tr>
<td>16</td>
<td>MGSE3.G.2</td>
<td>2</td>
<td>A</td>
<td>The correct answer is choice (A) $\frac{1}{4}$ square foot. The whole area of 1 foot is divided into 4 equal parts, so each part is $\frac{1}{4}$ of the whole area. Choice (B) is incorrect because it is the area of the parts Sam does not use. Choice (C) is incorrect because it is the sum of the whole and the part. Choice (D) is incorrect because it is the product of the whole area and 4.</td>
</tr>
<tr>
<td>17</td>
<td>MGSE3.MD.7b</td>
<td>2</td>
<td>A/D/F</td>
<td>The correct answers are choices (A), (D), and (F). Choice (A) is correct because 4 multiplied by 9 is 36. Choice (D) is correct because 6 multiplied by 6 is 36. Choice (F) is correct because 12 multiplied by 3 is 36. Choice (B) is incorrect because 7 multiplied by 5 is 35. Choice (C) is incorrect because 10 multiplied by 4 is 40. Choice (E) is incorrect because 5 multiplied by 8 is 40.</td>
</tr>
</tbody>
</table>

Part A: The correct answer is choice (A) 170.
### Scoring Rubric

<table>
<thead>
<tr>
<th>Points</th>
<th>Rationale</th>
</tr>
</thead>
</table>
| 2      | The response achieves the following:  
- The response demonstrates a complete understanding of solve “how many more” problems using information presented in a scaled bar graph.  
- The response is correct and complete.  
- The response shows the application of a reasonable and relevant strategy.  
- Mathematical ideas are expressed coherently in the response, which is clear, complete, logical, and fully developed. |
| 1      | The response achieves the following:  
- The response demonstrates a partial understanding of solve “how many more” problems using information presented in a scaled bar graph.  
- The response is mostly correct but contains either a computation error or an unclear or incomplete explanation.  
- The response shows the application of a relevant strategy, though the strategy may be only partially applied or may remain unexplained.  
- Mathematical ideas are expressed only partially in the response. |
| 0      | The response achieves the following:  
- The response demonstrates limited to no understanding of solve “how many more” problems using information presented in a scaled bar graph.  
- The response is incorrect.  
- The response shows no application of a strategy.  
- Mathematical ideas cannot be interpreted or lack sufficient evidence to support even a limited understanding. |

### Exemplar Response

<table>
<thead>
<tr>
<th>Points Awarded</th>
<th>Sample Response</th>
</tr>
</thead>
</table>
| 2              | Ben counted 8 more red birds than yellow birds.  
**AND**  
The bar for red ends at 10 to show that Ben counted 10 red birds. The bar for yellow ends at 2 to show that Ben counted 2 red birds. 10 minus 2 is 8. *Or other valid explanation.* |
| 1              | Ben counted 8 more red birds than yellow birds with no explanation or an incorrect explanation  
**OR**  
an explanation that contains a computation error but contains the correct process. |
<p>| 0              | Response is irrelevant, inappropriate, or not provided. |</p>
<table>
<thead>
<tr>
<th>Points</th>
<th>Scoring Rubric</th>
</tr>
</thead>
</table>
| 4      | The response achieves the following:  
  - The response demonstrates a complete understanding of patterns on the multiplication chart.  
  - The response is correct and complete.  
  - The response shows the application of a reasonable and relevant strategy.  
  - Mathematical ideas are expressed coherently in the response, which is clear, complete, logical, and fully developed. |
| 3      | The response achieves the following:  
  - The response demonstrates a nearly complete understanding of patterns on the multiplication chart.  
  - The response is mostly correct but contains either a computation error or an unclear or incomplete explanation.  
  - The response shows the application of a relevant strategy, though the strategy may be only partially applied or may remain unexplained.  
  - Mathematical ideas are expressed only partially in the response. |
| 2      | The response achieves the following:  
  - The response demonstrates a partial understanding of patterns on the multiplication chart.  
  - The response is only partially correct.  
  - The response shows the application of a relevant strategy, though the strategy may be only partially applied or may remain unexplained.  
  - Mathematical ideas are expressed only partially in the response. |
| 1      | The response achieves the following:  
  - The response demonstrates a minimal understanding of patterns on the multiplication chart.  
  - The response is only minimally correct.  
  - The response shows the incomplete or inaccurate application of a relevant strategy.  
  - Mathematical ideas are expressed only partially in the response. |
| 0      | The response achieves the following:  
  - The response demonstrates limited to no understanding of patterns on the multiplication chart.  
  - The response is incorrect.  
  - The response shows no application of a strategy.  
  - Mathematical ideas cannot be interpreted or lack sufficient evidence to support even a limited understanding. |
**Exemplar Response**

<table>
<thead>
<tr>
<th>Points Awarded</th>
<th>Sample Response</th>
</tr>
</thead>
</table>
| 4              | Part A: Each number ends in a 5 or a 0 or other valid pattern.  
     **AND**  
     Part B: 55  
     **AND**  
     because each increases by 5 and 50 + 5 is 55 or other valid reasoning  
     **AND**  
     Part C: 8 is even so every multiple of 8 is even. Or other valid reasoning. |
| 3              | The student correctly answers three of the four parts. |
| 2              | The student correctly answers two of the four parts. |
| 1              | The student correctly answers one of the four parts. |
| 0              | Response is irrelevant, inappropriate, or not provided. |