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Questions 1 - 25: Content Summary and Answer Key................................................................. iii

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<td></td>
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</tr>
</tbody>
</table>
# Grade 3 Math
## Practice Test
### Content Summary and Answer Key

<table>
<thead>
<tr>
<th>Question No.</th>
<th>Item Type</th>
<th>Content Cluster</th>
<th>Content Standard</th>
<th>Answer Key</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Multiple Choice</td>
<td>Develop understanding of fractions as numbers.</td>
<td>Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into $b$ equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by $a$ parts of size $\frac{1}{b}$. (3.NF.1)</td>
<td>C</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Table Item</td>
<td>Represent and solve problems involving multiplication and division.</td>
<td>Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times \square = 48$, $5 = \square + 3$, and $6 \times 6 = \square$. (3.OA.4)</td>
<td>---</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Graphic Response</td>
<td>Represent and interpret data.</td>
<td>Create scaled picture graphs to represent a data set with several categories. Create scaled bar graphs to represent a data set with several categories. Solve two-step “how many more” and “how many less” problems using information presented in the scaled graphs. For example, create a bar graph in which each square in the bar graph might represent 5 pets, then determine how many more/less in two given categories. (3.MD.3)</td>
<td>---</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Table Item</td>
<td>Represent and solve problems involving multiplication and division.</td>
<td>Interpret products of whole numbers, e.g., interpret $5 \times 7$ as the total number of objects in 5 groups of 7 objects each. (Note: These standards are written with the convention that $a \times b$ means $a$ groups of $b$ objects each; however, because of the commutative property, students may also interpret $5 \times 7$ as the total number of objects in 7 groups of 5 objects each). (3.OA.1)</td>
<td>---</td>
<td>1</td>
</tr>
<tr>
<td>Question No.</td>
<td>Item Type</td>
<td>Content Cluster</td>
<td>Content Standard</td>
<td>Answer Key</td>
<td>Points</td>
</tr>
<tr>
<td>-------------</td>
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</tr>
<tr>
<td>5</td>
<td>Equation Item</td>
<td>Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</td>
<td>Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). (3.MD.6)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>6</td>
<td>Graphic Response</td>
<td>Develop understanding of fractions as numbers.</td>
<td>Understand a fraction ( \frac{1}{b} ) as the quantity formed by 1 part when a whole is partitioned into ( b ) equal parts; understand a fraction ( \frac{a}{b} ) as the quantity formed by ( a ) parts of size ( \frac{1}{b} ). (3.NF.1)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>7</td>
<td>Table Item</td>
<td>Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</td>
<td>Work with time and money. a. Tell and write time to the nearest minute. Measure time intervals in minutes (within 90 minutes). Solve real-world problems involving addition and subtraction of time intervals (elapsed time) in minutes, e.g., by representing the problem on a number line diagram or clock. (3.MD.1a)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>8</td>
<td>Multi-Select Item</td>
<td>Represent and solve problems involving multiplication and division.</td>
<td>Interpret whole-number quotients of whole numbers, e.g., interpret ( 56 \div 8 ) as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as ( 56 \div 8 ). (3.OA.2)</td>
<td>D, E</td>
<td>1 point</td>
</tr>
<tr>
<td>Question No.</td>
<td>Item Type</td>
<td>Content Cluster</td>
<td>Content Standard</td>
<td>Answer Key</td>
<td>Points</td>
</tr>
<tr>
<td>-------------</td>
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<td>----------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>9</td>
<td>Graphic Response</td>
<td>Represent and interpret data.</td>
<td>Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. (3.MD.4)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>10</td>
<td>Equation Item</td>
<td>Reason with shapes and their attributes.</td>
<td>Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape. (3.G.2)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>11</td>
<td>Equation Item</td>
<td>Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</td>
<td>Work with time and money. a. Tell and write time to the nearest minute. Measure time intervals in minutes (within 90 minutes). Solve real-world problems involving addition and subtraction of time intervals (elapsed time) in minutes, e.g., by representing the problem on a number line diagram or clock. (3.MD.1a)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>12</td>
<td>Equation Item</td>
<td>Use place value understanding and properties of operations to perform multi-digit arithmetic.</td>
<td>Multiply one-digit whole numbers by multiples of 10 in the range 10 - 90, e.g., 9 × 80, 5 × 60, using strategies based on place value and properties of operations. (3.NBT.3)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>Question No.</td>
<td>Item Type</td>
<td>Content Cluster</td>
<td>Content Standard</td>
<td>Answer Key</td>
<td>Points</td>
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<td>-------------</td>
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<td>----------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>--------</td>
</tr>
</tbody>
</table>
| 13          | Equation Item  | Geometric measurement: understand concepts of area and relate area to multiplication and to addition. | Relate area to the operations of multiplication and addition.  
 a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. (3.MD.7a) | ---         | 1 point |
| 14          | Graphic Response | Develop understanding of fractions as numbers.                                | Understand a fraction as a number on the number line; represent fractions on a number line diagram.  
 b. Represent a fraction \( \frac{a}{b} \) (which may be greater than one) on a number line diagram by marking off a lengths \( \frac{1}{b} \) from 0. Recognize that the resulting interval has size \( \frac{a}{b} \) and that its endpoint locates the number \( \frac{a}{b} \) on the number line. (3.NF.2b) | ---         | 1 point |
<p>| 15          | Equation Item  | Represent and interpret data.                                                  | Create scaled picture graphs to represent a data set with several categories. Create scaled bar graphs to represent a data set with several categories. Solve two-step “how many more” and “how many less” problems using information presented in the scaled graphs. For example, create a bargraph in which each square in the bar graph might represent 5 pets, then determine how many more/less in two given categories. (3.MD.3) | ---         | 1 point |</p>
<table>
<thead>
<tr>
<th>Question No.</th>
<th>Item Type</th>
<th>Content Cluster</th>
<th>Content Standard</th>
<th>Answer Key</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Equation Item</td>
<td>Multiply and divide within 100.</td>
<td>Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division, e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$, or properties of operations. Limit to division without remainders. By the end of grade 3, know from memory all products of two one-digit numbers. (3.OA.7)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>17</td>
<td>Multiple Choice</td>
<td>Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.</td>
<td>Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. (3.MD.8)</td>
<td>B</td>
<td>1 point</td>
</tr>
<tr>
<td>18</td>
<td>Multiple Choice</td>
<td>Develop understanding of fractions as numbers.</td>
<td>Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = \frac{3}{1}$; recognize that $\frac{6}{1} = 6$; locate $\frac{4}{4}$ and 1 at the same point of a number line diagram. (3.NF.3c)</td>
<td>B</td>
<td>1 point</td>
</tr>
<tr>
<td>Question No.</td>
<td>Item Type</td>
<td>Content Cluster</td>
<td>Content Standard</td>
<td>Answer Key</td>
<td>Points</td>
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<td>--------</td>
</tr>
<tr>
<td>19</td>
<td>Equation Item</td>
<td>Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</td>
<td>Measure and estimate liquid volumes and masses of objects using standard units of grams, kilograms, and liters. Add, subtract, multiply, or divide whole numbers to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (3.MD.2)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>20</td>
<td>Multiple Choice</td>
<td>Develop understanding of fractions as numbers.</td>
<td>Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols &gt;, =, or &lt;, and justify the conclusions, e.g., by using a visual fraction model. (3.NF.3d)</td>
<td>A</td>
<td>1 point</td>
</tr>
<tr>
<td>21</td>
<td>Equation Item</td>
<td>Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</td>
<td>Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. (3.MD.7a)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>22</td>
<td>Multiple Choice</td>
<td>Use place value understanding and properties of operations to perform multi-digit arithmetic.</td>
<td>Use place value understanding to round whole numbers to the nearest 10 or 100. (3.NBT.1)</td>
<td>C</td>
<td>1 point</td>
</tr>
<tr>
<td>Question No.</td>
<td>Item Type</td>
<td>Content Cluster</td>
<td>Content Standard</td>
<td>Answer Key</td>
<td>Points</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------</td>
<td>-----------------</td>
<td>------------------</td>
<td>------------</td>
<td>--------</td>
</tr>
<tr>
<td>23</td>
<td>Multiple Choice</td>
<td>Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</td>
<td>Recognize area as an attribute of plane figures and understand concepts of area measurement. b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units. (3.MD.5b)</td>
<td>B</td>
<td>1 point</td>
</tr>
<tr>
<td>24</td>
<td>Gap Match Item</td>
<td>Develop understanding of fractions as numbers.</td>
<td>Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols &gt;, =, or &lt;, and justify the conclusions, e.g., by using a visual fraction model. (3.NF.3d)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>25</td>
<td>Table Item</td>
<td>Use place value understanding and properties of operations to perform multi-digit arithmetic.</td>
<td>Multiply one-digit whole numbers by multiples of 10 in the range 10-90, e.g., 9 × 80, 5 × 60, using strategies based on place value and properties of operations. (3.NBT.3)</td>
<td>---</td>
<td>1 point</td>
</tr>
</tbody>
</table>
Grade 3
Math
Practice Test

Question 1

Question and Scoring Guidelines
Question 1

Dawn has $\frac{1}{4}$ of a whole fraction model.

Which fraction model should Dawn make to represent the whole figure?

A)  

B)  

C)  

D)  

Points Possible: 1

**Content Cluster:** Develop understanding of fractions as numbers.

**Content Standard:** Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into $b$ equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$. (3.NF.1)
Scoring Guidelines

Rationale for Option A: This is incorrect. The student may have incorrectly identified the whole figure that the part belonged to.

Rationale for Option B: This is incorrect. The student may have considered the whole to contain 5 parts, making the fraction $\frac{1}{4}$ when one piece was removed, leaving 4 parts.

Rationale for Option C: **Key** – The student correctly identified the whole model containing 4 parts.

Rationale for Option D: This is incorrect. The student may have considered the whole to contain 3 parts, making the fraction $\frac{1}{4}$ when one piece was added, making 4 parts.

Sample Response: 1 point
Grade 3 Math Practice Test

Question 2

Question and Scoring Guidelines
Question 2

Fill in the table to complete each equation.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>12</td>
<td>×</td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td>24</td>
<td>÷</td>
<td>4</td>
</tr>
<tr>
<td>C.</td>
<td></td>
<td>×</td>
<td>7</td>
</tr>
<tr>
<td>D.</td>
<td>9</td>
<td>×</td>
<td></td>
</tr>
</tbody>
</table>

**Points Possible:** 1

**Content Cluster:** Represent and solve problems involving multiplication and division.

**Content Standard:** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations \(8 \times □ = 48\), \(5 = □ ÷ 3\), and \(6 \times 6 = □\). (3.OA.4)
Scoring Guidelines

Exemplar Response

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>$12 \times 3$</td>
<td>$36$</td>
</tr>
<tr>
<td>B.</td>
<td>$24 \div 4$</td>
<td>$6$</td>
</tr>
<tr>
<td>C.</td>
<td>$8 \times 7$</td>
<td>$56$</td>
</tr>
<tr>
<td>D.</td>
<td>$9 \times 3$</td>
<td>$27$</td>
</tr>
</tbody>
</table>

Other Correct Responses

- Any equivalent decimal value

For this item, a full-credit response includes:

- Four correct values (1 point).
Grade 3
Math
Practice Test

Question 2

Sample Responses
**Sample Response: 1 point**

Fill in the table to complete each equation.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>12</td>
<td>×</td>
</tr>
<tr>
<td>B</td>
<td>24</td>
<td>÷</td>
</tr>
<tr>
<td>C</td>
<td>8</td>
<td>×</td>
</tr>
<tr>
<td>D</td>
<td>9</td>
<td>×</td>
</tr>
</tbody>
</table>

**Notes on Scoring**

This response earns full credit (1 point) because the student correctly identified the missing value to complete each equation.
Sample Response: 1 point

Fill in the table to complete each equation.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>12</td>
<td>3.0</td>
</tr>
<tr>
<td>B</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>8.0</td>
<td>7</td>
</tr>
<tr>
<td>D</td>
<td>9</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified the missing value in decimal form to complete each equation.

While decimals are not introduced in the standards until grade 4, a student can earn credit at grade 3 by identifying an equivalent value to a correct response.
Sample Response: 0 points

Fill in the table to complete each equation.

<table>
<thead>
<tr>
<th>A.</th>
<th>12 \times 4</th>
<th>= 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.</td>
<td>24 \div 4</td>
<td>= 6</td>
</tr>
<tr>
<td>C.</td>
<td>8 \times 7</td>
<td>= 56</td>
</tr>
<tr>
<td>D.</td>
<td>9 \times 3</td>
<td>= 27</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the missing value in one of the equations.

- The student correctly identified the missing value in three of the equations.
  - \(24 \div 4 = 6\)
  - \(8 \times 7 = 56\)
  - \(9 \times 3 = 27\)
- The student did not correctly identify the missing value in one of the equations.
  - \(12 \times 4 \neq 36\)
Sample Response: 0 points

Fill in the table to complete each equation.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>12</td>
<td>×</td>
</tr>
<tr>
<td>B.</td>
<td>24</td>
<td>÷</td>
</tr>
<tr>
<td>C.</td>
<td>6</td>
<td>×</td>
</tr>
<tr>
<td>D.</td>
<td>9</td>
<td>×</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the missing value in one of the equations.

- The student correctly identified the missing value in three of the equations.
  - \(12 \times 3 = 36\)
  - \(24 \div 4 = 6\)
  - \(9 \times 3 = 27\)
- The student did not correctly identify the missing value in one of the equations.
  - \(6 \times 7 \neq 56\)
Question 3

Question and Scoring Guidelines
Mitch asks some students on the playground what class they had before recess. The results are shown in the table.

<table>
<thead>
<tr>
<th>Class</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>6</td>
</tr>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Science</td>
<td>2</td>
</tr>
<tr>
<td>Social Studies</td>
<td>5</td>
</tr>
</tbody>
</table>

Drag books and half books to each row to create a picture graph that represents the data.

**Points Possible:** 1

**Content Cluster:** Represent and interpret data.

**Content Standard:** Create scaled picture graphs to represent a data set with several categories. Create scaled bar graphs to represent a data set with several categories. Solve two-step “how many more” and “how many less” problems using information presented in the scaled graphs. For example, create a bar graph in which each square in the bar graph might represent 5 pets, then determine how many more/less in two given categories. (3.MD.3)
Scoring Guidelines

Exemplar Response

<table>
<thead>
<tr>
<th>Subject</th>
<th>Picture Graph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>📚 📚 📚</td>
</tr>
<tr>
<td>English</td>
<td>📚 📚</td>
</tr>
<tr>
<td>Science</td>
<td>📚</td>
</tr>
<tr>
<td>Social Studies</td>
<td>📚 📚 📚</td>
</tr>
</tbody>
</table>

Other Correct Responses

- Two half books can replace any one book
- The books can be placed in any part of the row

For this item, a full-credit response includes:

- The correct picture graph (1 point).
Grade 3
Math
Practice Test

Question 3

Sample Responses
Sample Response: 1 point

Mitch asks some students on the playground what class they had before recess. The results are shown in the table.

<table>
<thead>
<tr>
<th>Class Before Recess</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>6</td>
</tr>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Science</td>
<td>2</td>
</tr>
<tr>
<td>Social Studies</td>
<td>5</td>
</tr>
</tbody>
</table>

Drag books and half books to each row to create a picture graph that represents the data.

Notes on Scoring

This response earns full credit (1 point) because the student correctly created a picture graph that represents the data in the table.
Notes on Scoring

This response earns full credit (1 point) because the student correctly created a picture graph that represents the data in the table.
Notes on Scoring

This response earns no credit (0 points) because the student did not correctly create a picture graph that represents the data in the table.

- Each subject shown on the graph contains twice as many students as are identified in the table.
- The student may have thought that each full book shown on the graph represented one student instead of two students.
Sample Response: 0 points

Mitch asks some students on the playground what class they had before recess. The results are shown in the table.

<table>
<thead>
<tr>
<th>Class Before Recess</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>6</td>
</tr>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Science</td>
<td>2</td>
</tr>
<tr>
<td>Social Studies</td>
<td>5</td>
</tr>
</tbody>
</table>

Drag books and half books to each row to create a picture graph that represents the data.

Class Before Recess

<table>
<thead>
<tr>
<th>Class</th>
<th>Books</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>📚📚📚</td>
</tr>
<tr>
<td>English</td>
<td>📚📚</td>
</tr>
<tr>
<td>Science</td>
<td>📚</td>
</tr>
<tr>
<td>Social Studies</td>
<td>📚📚📚</td>
</tr>
</tbody>
</table>

Key


d = 2 students

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly create a picture graph that represents the data in the table.

- The number of students who have English before recess is incorrectly shown as four on the graph.
- The number of students who have Social Studies before recess is incorrectly shown as six on the graph.
- The student may have thought the graph could only represent even numbers of students and therefore incorrectly represented the odd numbers of students.
Question 4

Mrs. Tate arranges 24 desks into rows. Each row has the same number of desks.

Complete the table to show one way that Mrs. Tate could arrange all of the desks into rows.

<table>
<thead>
<tr>
<th>Number of Rows</th>
<th>Number of Desks in Each Row</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Points Possible: 1

Content Cluster: Represent and solve problems involving multiplication and division.

Content Standard: Interpret products of whole numbers, e.g., interpret $5 \times 7$ as the total number of objects in 5 groups of 7 objects each. (Note: These standards are written with the convention that $a \times b$ means $a$ groups of $b$ objects each; however, because of the commutative property, students may also interpret $5 \times 7$ as the total number of objects in 7 groups of 5 objects each). (3.OA.1)

Scoring Guidelines

Exemplar Response

<table>
<thead>
<tr>
<th>Number of Rows</th>
<th>Number of Desks in Each Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

Other Correct Responses

- Any combination where the product is equal to 24

For this item, a full-credit response includes:

- A correct table (1 point).
Grade 3
Math
Practice Test

Question 4

Sample Responses
Mrs. Tate arranges 24 desks into rows. Each row has the same number of desks.

Complete the table to show one way that Mrs. Tate could arrange all of the desks into rows.

<table>
<thead>
<tr>
<th>Number of Rows</th>
<th>Number of Desks in Each Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified one way to arrange 24 desks into rows with the same number of desks in each row.

- The student may have drawn an array to represent rows and desks per row that equals 24.

\[
\begin{array}{c}
\text{3 rows} \\
\text{1 row} \\
\text{1 row} \\
\text{1 row}
\end{array}
\]

\[
\begin{array}{c}
\text{8 desks in each row} \\
8 + 8 + 8 = 24 \\
3 \times 8 = 24
\end{array}
\]

\[
\bullet = 1 \text{ desk}
\]
Mrs. Tate arranges 24 desks into rows. Each row has the same number of desks.

Complete the table to show one way that Mrs. Tate could arrange all of the desks into rows.

<table>
<thead>
<tr>
<th>Number of Rows</th>
<th>Number of Desks in Each Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

**Notes on Scoring**

This response earns full credit (1 point) because the student correctly identified one way to arrange 24 desks into rows with the same number of desks in each row.
- The student may have drawn an array to represent rows and desks per row that equals 24.

\[
4 + 4 + 4 + 4 + 4 + 4 = 24 \\
6 \times 4 = 24
\]
Sample Response: 0 points

Mrs. Tate arranges 24 desks into rows. Each row has the same number of desks.

Complete the table to show one way that Mrs. Tate could arrange all of the desks into rows.

<table>
<thead>
<tr>
<th>Number of Rows</th>
<th>Number of Desks in Each Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify a correct way to arrange 24 desks into rows with an equal number of desks.

- The student may have used the relationship between addition and subtraction to identify two numbers that add up to 24 instead of finding two numbers that can be multiplied to get 24.

\[
24 - 12 = 12 \quad \text{AND} \quad 12 + 12 = 24
\]

\[
12 \times 12 \neq 24
\]
Mrs. Tate arranges 24 desks into rows. Each row has the same number of desks.

Complete the table to show one way that Mrs. Tate could arrange all of the desks into rows.

<table>
<thead>
<tr>
<th>Number of Rows</th>
<th>Number of Desks in Each Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>14</td>
</tr>
</tbody>
</table>

**Notes on Scoring**

This response earns no credit (0 points) because the student did not identify a correct way to arrange 24 desks into rows with an equal number of desks.

- The student may have used the relationship between addition and subtraction to identify two numbers that add up to 24 instead of finding two numbers that can be multiplied to get 24.

\[24 - 10 = 14 \quad \text{AND} \quad 10 + 14 = 24\]

\[10 \times 14 \neq 24\]
Grade 3
Math
Practice Test

Question 5

Question and Scoring Guidelines
Question 5

The floor of a rectangular playroom is covered by square tiles as shown.

What is the area, in square meters, of the playroom floor? Enter the number in the box.

Points Possible: 1

Content Cluster: Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Content Standard: Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). (3.MD.6)
**Scoring Guidelines**

**Exemplar Response**
- 20 square meters

**Other Correct Responses**
- Any equivalent value

For this item, a full-credit response includes:
- The correct area (1 point).
Grade 3
Math
Practice Test

Question 5

Sample Responses
**Sample Response: 1 point**

The floor of a rectangular playroom is covered by square tiles as shown.

What is the area, in square meters, of the playroom floor? Enter the number in the box.

20 square meters

**Notes on Scoring**

This response earns full credit (1 point) because the student correctly identified the area of the rectangular playroom.

- The student may have counted the 4 rows of 5 tiles.
  \[5 + 5 + 5 + 5 = 20 \text{ square meters}\]
- The student may have counted the 5 columns of 4 tiles.
  \[4 + 4 + 4 + 4 + 4 = 20 \text{ square meters}\]
Sample Response: 0 points

The floor of a rectangular playroom is covered by square tiles as shown.

What is the area, in square meters, of the playroom floor? Enter the number in the box.

54 square meters

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the area of the rectangular playroom.

- The student may have thought the width equals 5 meters and the length equals 4 meters, and therefore, the area equals 54 square meters.
Sample Response: 0 points

The floor of a rectangular playroom is covered by square tiles as shown.

What is the area, in square meters, of the playroom floor? Enter the number in the box.

45 square meters

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the area of the rectangular playroom.

- The student may have thought the length equals 4 meters and the width equals 5 meters, and therefore, the area equals 45 square meters.
Grade 3
Math Practice Test

Question 6

Question and Scoring Guidelines
Question 6

Casey drew a fraction model with $\frac{5}{6}$ shaded.

Place shaded and unshaded blocks in the empty box to show a fraction model that Casey could have drawn.

- You may use each block more than once.
- There may be more than one correct answer.

Points Possible: 1

Content Cluster: Develop understanding of fractions as numbers.

Content Standard: Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$. (3.NF.1)
Scoring Guidelines

Exemplar Response

Any ratio of shaded boxes to unshaded boxes equivalent to 5 to 1

Other Correct Responses

• A correct model (1 point).
Grade 3
Math
Practice Test

Question 6

Sample Responses
Sample Response: 1 point

Casey drew a fraction model with $\frac{5}{6}$ shaded.

Place shaded and unshaded blocks in the empty box to show a fraction model that Casey could have drawn.

- You may use each block more than once.
- There may be more than one correct answer.

Notes on Scoring

This response earns full credit (1 point) because the student correctly created a fraction model with $\frac{5}{6}$ of the model shaded.

- While the example shows the upper left tile unshaded, the student could have created any rectangular configuration with 5 shaded tiles and 1 unshaded tile.
Sample Response: 1 point

Casey drew a fraction model with $\frac{5}{6}$ shaded.

Place shaded and unshaded blocks in the empty box to show a fraction model that Casey could have drawn.

- You may use each block more than once.
- There may be more than one correct answer.

Notes on Scoring

This response earns full credit (1 point) because the student correctly created a fraction model with $\frac{5}{6}$ of the model shaded.

- While the example shows the two left-most tiles unshaded, the student could have created any rectangular configuration with 10 shaded tiles and 2 unshaded tiles.

While fractions with denominators of 12 are not introduced in the standards until grade 4, a student can earn credit at grade 3 by identifying an equivalent fraction to a correct response.
Sample Response: 0 points

Casey drew a fraction model with \( \frac{5}{6} \) shaded.

Place shaded and unshaded blocks in the empty box to show a fraction model that Casey could have drawn.

- You may use each block more than once.
- There may be more than one correct answer.

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly create a fraction model with \( \frac{5}{6} \) of the model shaded.

- The student may have overlooked that the fraction model created needed a total of 6 blocks, or a multiple of 6 blocks, and may have confused shaded and unshaded blocks.
Sample Response: 0 points

Casey drew a fraction model with $\frac{5}{6}$ shaded.

Place shaded and unshaded blocks in the empty box to show a fraction model that Casey could have drawn.

• You may use each block more than once.
• There may be more than one correct answer.

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly create a fraction model with $\frac{5}{6}$ of the model shaded.
• The student may have confused shaded and unshaded blocks.
Grade 3
Math
Practice Test

Question 7

Question and Scoring Guidelines
Question 7

Duncan does four chores to take care of his dog.
- He begins the chores at 11:15 a.m. and does not stop until he finishes all four chores.
- Duncan completes one chore before starting another.
- Duncan spends at least 1 minute on each chore.
- Duncan washes the dog from 11:40 a.m. to 12:13 p.m.
- Duncan finishes the chores at 12:35 p.m.

Complete the table to show how many minutes Duncan could spend on each of the three remaining chores.

<table>
<thead>
<tr>
<th>Chore</th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brush dog</td>
<td></td>
</tr>
<tr>
<td>Clean dog’s food and water dishes</td>
<td></td>
</tr>
<tr>
<td>Feed dog</td>
<td></td>
</tr>
</tbody>
</table>

Points Possible: 1

Content Cluster: Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

Content Standard: Work with time and money.
a. Tell and write time to the nearest minute. Measure time intervals in minutes (within 90 minutes). Solve real-world problems involving addition and subtraction of time intervals (elapsed time) in minutes, e.g., by representing the problem on a number line diagram or clock. (3.MD.1a)
Scoring Guidelines

Exemplar Response

<table>
<thead>
<tr>
<th>Chore</th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brush dog</td>
<td>22</td>
</tr>
<tr>
<td>Clean dog’s food and water</td>
<td>15</td>
</tr>
<tr>
<td>dishes</td>
<td></td>
</tr>
<tr>
<td>Feed dog</td>
<td>10</td>
</tr>
</tbody>
</table>

Other Correct Responses

- Three numbers, which are all greater than or equal to 1, where
  - One number is 25 and the other two add to 22;
  - OR
  - One number is 22 and the other two add to 25.

For this item, a full-credit response includes:

- Three correct times (1 point).
Grade 3
Math
Practice Test

Question 7

Sample Responses
Sample Response: 1 point

Duncan does four chores to take care of his dog.
- He begins the chores at 11:15 a.m. and does not stop until he finishes all four chores.
- Duncan completes one chore before starting another.
- Duncan spends at least 1 minute on each chore.
- Duncan washes the dog from 11:40 a.m. to 12:13 p.m.
- Duncan finishes the chores at 12:35 p.m.

Complete the table to show how many minutes Duncan could spend on each of the three remaining chores.

<table>
<thead>
<tr>
<th>Chore</th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brush dog</td>
<td>25</td>
</tr>
<tr>
<td>Clean dog’s food and water dishes</td>
<td>2</td>
</tr>
<tr>
<td>Feed dog</td>
<td>20</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns full credit (1 point) because the student identified a correct number of minutes Duncan could spend on each chore.

The student chose to have Duncan brush the dog before washing the dog, and then complete the other two chores after the dog is washed.
- To find the amount of time spent before washing the dog, the student may have used subtraction to find the difference between the times 11:40 and 11:15.
  \[11:40 - 11:15 = 25 \text{ minutes}\]
- To find the amount of time spent cleaning the dog’s food and water dishes and to feed the dog, the student may have used subtraction to find the difference between the times 12:35 and 12:13.
  \[12:35 - 12:13 = 22 \text{ minutes}\]
- The two remaining chores can be any amount of time as long as each chore takes at least 1 minute and the total time for both chores is 22 minutes.
- The student chose to have Duncan spend 2 minutes cleaning the food and water dishes, and 20 minutes feeding the dog.
  \[20 + 2 = 22 \text{ minutes}\]
Sample Response: 1 point

Duncan does four chores to take care of his dog.

- He begins the chores at 11:15 a.m. and does not stop until he finishes all four chores.
- Duncan completes one chore before starting another.
- Duncan spends at least 1 minute on each chore.
- Duncan washes the dog from 11:40 a.m. to 12:13 p.m.
- Duncan finishes the chores at 12:35 p.m.

Complete the table to show how many minutes Duncan could spend on each of the three remaining chores.

<table>
<thead>
<tr>
<th>Chore</th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brush dog</td>
<td>13</td>
</tr>
<tr>
<td>Clean dog’s food and water dishes</td>
<td>12</td>
</tr>
<tr>
<td>Feed dog</td>
<td>22</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns full credit (1 point) because the student identified a correct number of minutes Duncan could spend on each chore.

The student chose to have Duncan brush the dog and clean the dog’s food and water dishes before washing the dog. The student chose to have Duncan feed the dog after the dog is washed.

- To find the amount of time spent before washing the dog, the student may have used subtraction to find the difference between the times 11:40 and 11:15.
  \[11:40 - 11:15 = 25 \text{ minutes}\]
- The first two chores can be any amount of time as long as each chore takes at least 1 minute and the total time for both chores does not exceed 25 minutes.
- The student chose to have Duncan brush the dog for 13 minutes and clean the dog's food and water dishes for 12 minutes.
  \[13 + 12 = 25 \text{ minutes}\]
- To find the amount of time spent feeding the dog, the student may have used subtraction to find the difference between the times 12:35 and 12:13.
  \[12:35 - 12:13 = 22 \text{ minutes}\]
Sample Response: 0 points

- He begins the chores at 11:15 a.m. and does not stop until he finishes all four chores.
- Duncan completes one chore before starting another.
- Duncan spends at least 1 minute on each chore.
- Duncan washes the dog from 11:40 a.m. to 12:13 p.m.
- Duncan finishes the chores at 12:35 p.m.

Complete the table to show how many minutes Duncan could spend on each of the three remaining chores.

<table>
<thead>
<tr>
<th>Chore</th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brush dog</td>
<td>1</td>
</tr>
<tr>
<td>Clean dog’s food and water dishes</td>
<td>1</td>
</tr>
<tr>
<td>Feed dog</td>
<td>45</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the number of minutes Duncan could spend on each chore.

- The student identified the correct total amount of time Duncan can spend on the three chores: 47 minutes. The student did not correctly identify the amount of time Duncan can spend on each chore because Duncan has to complete each chore before starting another. Duncan cannot spend 45 minutes feeding the dog, because no matter when he started, the time would overlap with the time he spent washing the dog from 11:40 a.m. to 12:13 p.m.
Sample Response: 0 points

Duncan does four chores to take care of his dog.
• He begins the chores at 11:15 a.m. and does not stop until he finishes all four chores.
• Duncan completes one chore before starting another.
• Duncan spends at least 1 minute on each chore.
• Duncan washes the dog from 11:40 a.m. to 12:13 p.m.
• Duncan finishes the chores at 12:35 p.m.

Complete the table to show how many minutes Duncan could spend on each of the three remaining chores.

<table>
<thead>
<tr>
<th>Chore</th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brush dog</td>
<td>20</td>
</tr>
<tr>
<td>Clean dog’s food and water dishes</td>
<td>30</td>
</tr>
<tr>
<td>Feed dog</td>
<td>30</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the number of minutes Duncan could spend on each chore.
• The student identified the total amount of time Duncan spent on all four of his chores: 80 minutes. The student may have then overlooked the 33 minutes from 11:40 a.m. to 12:13 p.m. that Duncan spent washing the dog.
Grade 3 Math Practice Test

Question 8

Question and Scoring Guidelines
Question 8

Sandra has 24 strawberries.

Select the **two** situations that can be represented by the expression 24 ÷ 4.

- She puts 4 strawberries into a container.
- Her friend gives her 4 more strawberries.
- Her 4 friends each give her 24 more strawberries.
- She places an equal number of strawberries into 4 containers.
- She gives the same number of strawberries to each of 4 friends.

**Points Possible:** 1

**Content Cluster:** Represent and solve problems involving multiplication and division.

**Content Standard:** Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8. (3.OA.2)
Scoring Guidelines

Rationale for First Option: This is incorrect. The student may have confused division with subtraction.

Rationale for Second Option: This is incorrect. The student may have confused division with addition.

Rationale for Third Option: This is incorrect. The student may have confused division with multiplication.

Rationale for Fourth Option: Key – The student correctly identified a situation that involves division.

Rationale for Fifth Option: Key – The student correctly identified a situation that involves division.

Sample Response: 1 point

Sandra has 24 strawberries.

Select the two situations that can be represented by the expression 24 ÷ 4.

☐ She puts 4 strawberries into a container.
☐ Her friend gives her 4 more strawberries.
☐ Her 4 friends each give her 24 more strawberries.
☑ She places an equal number of strawberries into 4 containers.
☑ She gives the same number of strawberries to each of 4 friends.
Question 9

Betty measures the heights of her plants. The results are shown in the table.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Plant Height (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant 1</td>
<td>4 1/2</td>
</tr>
<tr>
<td>Plant 2</td>
<td>6</td>
</tr>
<tr>
<td>Plant 3</td>
<td>3 1/2</td>
</tr>
<tr>
<td>Plant 4</td>
<td>4 1/2</td>
</tr>
<tr>
<td>Plant 5</td>
<td>6</td>
</tr>
<tr>
<td>Plant 6</td>
<td>3</td>
</tr>
</tbody>
</table>

Select boxes to create a line plot that represents the heights of Betty’s plants.

Points Possible: 1

Content Cluster: Represent and interpret data.

Content Standard: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. (3.MD.4)
**Scoring Guidelines**

**Exemplar Response**

![Plant Height Data Line Plot](image)

**Other Correct Responses**

- N/A

For this item, a full-credit response includes:

- The correct line plot (1 point).
Grade 3
Math
Practice Test

Question 9

Sample Responses
Sample Response: 1 point

Betty measures the heights of her plants. The results are shown in the table.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Plant Height (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant 1</td>
<td>$4\frac{1}{2}$</td>
</tr>
<tr>
<td>Plant 2</td>
<td>6</td>
</tr>
<tr>
<td>Plant 3</td>
<td>$3\frac{1}{2}$</td>
</tr>
<tr>
<td>Plant 4</td>
<td>$4\frac{1}{2}$</td>
</tr>
<tr>
<td>Plant 5</td>
<td>6</td>
</tr>
<tr>
<td>Plant 6</td>
<td>3</td>
</tr>
</tbody>
</table>

Select boxes to create a line plot that represents the heights of Betty's plants.

Notes on Scoring

This response earns full credit (1 point) because the student correctly created a line plot representing the data in the table.
Sample Response: 0 points

Betty measures the heights of her plants. The results are shown in the table.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Plant Height (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant 1</td>
<td>$4 \frac{1}{2}$</td>
</tr>
<tr>
<td>Plant 2</td>
<td>6</td>
</tr>
<tr>
<td>Plant 3</td>
<td>$3 \frac{1}{2}$</td>
</tr>
<tr>
<td>Plant 4</td>
<td>$4 \frac{1}{2}$</td>
</tr>
<tr>
<td>Plant 5</td>
<td>6</td>
</tr>
<tr>
<td>Plant 6</td>
<td>3</td>
</tr>
</tbody>
</table>

Select boxes to create a line plot that represents the heights of Betty’s plants.

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly create a line plot representing the data in the table.

- The student may have thought each height from the table only needed to be represented on the line plot once.
Sample Response: 0 points

Betty measures the heights of her plants. The results are shown in the table.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Plant Height (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant 1</td>
<td>$4 \frac{1}{2}$</td>
</tr>
<tr>
<td>Plant 2</td>
<td>6</td>
</tr>
<tr>
<td>Plant 3</td>
<td>$3 \frac{1}{2}$</td>
</tr>
<tr>
<td>Plant 4</td>
<td>$4 \frac{1}{2}$</td>
</tr>
<tr>
<td>Plant 5</td>
<td>6</td>
</tr>
<tr>
<td>Plant 6</td>
<td>3</td>
</tr>
</tbody>
</table>

Select boxes to create a line plot that represents the heights of Betty’s plants.

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly create a line plot representing the data in the table.

- The student may have thought each height from the table needed to be shown on the line plot twice.
Grade 3
Math
Practice Test

Question 10

Question and Scoring Guidelines
Question 10

A shape is divided into equal parts as shown.

Enter a fraction that represents the shaded area of the shape.

Points Possible: 1

Content Cluster: Reason with shapes and their attributes.

Content Standard: Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape. (3.G.2)
Scoring Guidelines

Exemplar Response

- $\frac{3}{8}$

Other Correct Responses

- Any equivalent decimal value

For this item, a full-credit response includes:

- A correct value (1 point).
Grade 3 Math Practice Test

Question 10

Sample Responses
Sample Response: 1 point

A shape is divided into equal parts as shown.

Enter a fraction that represents the shaded area of the shape.

\[ \frac{3}{8} \]
Notes on Scoring

This response earns full credit (1 point) because the student identified a fraction that represents the shaded area of the shape.

- The student may have counted all the triangles to identify a total of 8 equal parts and then counted the shaded triangles.
Sample Response: 1 point

A shape is divided into equal parts as shown.

Enter a fraction that represents the shaded area of the shape.

\[
\frac{6}{16}
\]
Notes on Scoring

This response earns full credit (1 point) because the student identified a fraction that represents the shaded area of the shape.

- The student may have counted all the triangles to identify a total of 8 equal parts and then counted the shaded triangles before entering a value equivalent to $\frac{3}{8}$. 
Sample Response: 0 points

A shape is divided into equal parts as shown.

Enter a fraction that represents the shaded area of the shape.

\[ \frac{4}{8} \]
Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify a fraction that represents the shaded area of the shape.

- The student may have counted all the triangles to identify a total of 8 equal parts and then miscounted the shaded triangles.
A shape is divided into equal parts as shown.

Enter a fraction that represents the shaded area of the shape.

\[
\frac{8}{3}
\]
Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify a fraction that represents the shaded area of the shape.

• The student may have counted all the triangles to identify a total of 8 equal parts and then counted the shaded triangles, but incorrectly wrote the fraction.
Grade 3
Math
Practice Test

Question 11

Question and Scoring Guidelines
Question 11

Zoe takes her dog for a walk at 4:17 p.m. She and her dog return from the walk at 5:07 p.m. How many minutes (min) did Zoe walk her dog? Enter the number in the box.

Points Possible: 1

Content Cluster: Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

Content Standard: Work with time and money.
   a. Tell and write time to the nearest minute. Measure time intervals in minutes (within 90 minutes). Solve real-world problems involving addition and subtraction of time intervals (elapsed time) in minutes, e.g., by representing the problem on a number line diagram or clock. (3.MD.1a)

Scoring Guidelines

Exemplar Response
   • 50

Other Correct Responses
   • Any equivalent value

For this item, a full-credit response includes:
   • The correct value (1 point).
Grade 3
Math
Practice Test

Question 11

Sample Responses
Zoe takes her dog for a walk at 4:17 p.m. She and her dog return from the walk at 5:07 p.m.

How many minutes (min) did Zoe walk her dog? Enter the number in the box.

Sample Response: 1 point
Notes on Scoring

This response earns full credit (1 point) because the student correctly calculated the number of minutes Zoe spent walking her dog.

- The student may have found the amount of time Zoe spent walking her dog by counting up from 4:17 p.m. to 5:07 p.m.
  
  4:17 p.m. + 10 minutes = 4:27 p.m.
  4:27 p.m. + 10 minutes = 4:37 p.m.
  4:37 p.m. + 10 minutes = 4:47 p.m.
  4:47 p.m. + 10 minutes = 4:57 p.m.
  4:57 p.m. + 10 minutes = 5:07 p.m.

  \[10 + 10 + 10 + 10 + 10 = 5 \times 10\]

  \[= 50 \text{ minutes}\]

- To find the amount of time Zoe spent walking her dog, the student may have used the relationship between addition and subtraction to find the difference between 5:07 p.m. and 4:17 p.m.

  5:07 p.m. + 10 minutes = 5:17 p.m.
  5:17 p.m. and 4:17 p.m. are 60 minutes apart.
  60 minutes - 10 minutes

  \[= 50 \text{ minutes}\]

  5:07 p.m. - 50 minutes

  \[= 4:17 \text{ p.m.}\]
Sample Response: 1 point

Zoe takes her dog for a walk at 4:17 p.m. She and her dog return from the walk at 5:07 p.m.

How many minutes (min) did Zoe walk her dog? Enter the number in the box.

50.0 min

Notes on Scoring

This response earns full credit (1 point) because the student correctly calculated the number of minutes Zoe spent walking her dog.

- The student may have found the amount of time Zoe spent walking her dog by counting up from 4:17 p.m. to 5:07 p.m.
  
  4:17 p.m. + 10.0 minutes = 4:27 p.m.
  4:27 p.m. + 10.0 minutes = 4:37 p.m.
  4:37 p.m. + 10.0 minutes = 4:47 p.m.
  4:47 p.m. + 10.0 minutes = 4:57 p.m.
  4:57 p.m. + 10.0 minutes = 5:07 p.m.

\[ 10.0 + 10.0 + 10.0 + 10.0 + 10.0 = 5 \times 10.0 = 50.0 \text{ minutes} \]

While decimals are not introduced in the standards until grade 4, a student can earn credit at grade 3 by identifying an equivalent value to a correct response.
Sample Response: 0 points

Zoe takes her dog for a walk at 4:17 p.m. She and her dog return from the walk at 5:07 p.m.

How many minutes (min) did Zoe walk her dog? Enter the number in the box.

\[
\begin{array}{c}
90 \\
\end{array}
\]

\[min\]

\[
\begin{array}{c|c|c}
1 & 2 & 3 \\
4 & 5 & 6 \\
7 & 8 & 9 \\
0 & . & \frac{1}{10} \\
\end{array}
\]

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly calculate the number of minutes Zoe spent walking her dog.

- The student may have used subtraction to find the amount of time Zoe spent walking her dog. The student may have incorrectly borrowed 100 minutes instead of 60 minutes when he/she regrouped to subtract from the tens.

\[
\begin{align*}
5 : 07 \\
- 4 : 17 \\
\hline
90 \text{ minutes}
\end{align*}
\]
Sample Response: 0 points

Zoe takes her dog for a walk at 4:17 p.m. She and her dog return from the walk at 5:07 p.m.

How many minutes (min) did Zoe walk her dog? Enter the number in the box.

\[ \frac{50}{60} \text{ min} \]

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly calculate the number of minutes Zoe spent walking her dog.

- The student may have correctly found the amount of time Zoe spent walking her dog in minutes, but then divided by 60 to find the amount of time in hours.
Question 12

Question and Scoring Guidelines
Question 12

A school uses 3 school buses to take students on a field trip. There are 30 students on each bus.

How many students are on the field trip? Enter the number in the box.

Points Possible: 1

Content Cluster: Use place value understanding and properties of operations to perform multi-digit arithmetic.

Content Standard: Multiply one-digit whole numbers by multiples of 10 in the range 10 – 90, e.g., 9 × 80, 5 × 60, using strategies based on place value and properties of operations. (3.NBT.3)

Scoring Guidelines

Exemplar Response
- 90

Other Correct Responses
- Any equivalent value

For this item, a full-credit response includes:
- The correct value (1 point).
Grade 3
Math
Practice Test

Question 12

Sample Responses
Sample Response: 1 point

A school uses 3 school buses to take students on a field trip. There are 30 students on each bus. How many students are on the field trip? Enter the number in the box.

90

Notes on Scoring

This response earns full credit (1 point) because the student correctly calculated the number of students on the field trip.

- The student may have found the answer using repeated addition or multiplication.
  
  \[30 + 30 + 30 = 3 \times 30\]
  \[= 90 \text{ students}\]
Sample Response: 1 point

A school uses 3 school buses to take students on a field trip. There are 30 students on each bus.

How many students are on the field trip? Enter the number in the box.

90.0

Notes on Scoring

This response earns full credit (1 point) because the student correctly calculated the number of students on the field trip.

- The student may have found the answer using repeated addition or multiplication.
  
  \[30.0 + 30.0 + 30.0 = 3 \times 30.0 = 90.0\] students

While decimals are not introduced in the standards until grade 4, a student can earn credit at grade 3 by identifying an equivalent value to a correct response.
Sample Response: 0 points

A school uses 3 school buses to take students on a field trip. There are 30 students on each bus.

How many students are on the field trip? Enter the number in the box.

10

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly calculate the number of students on the field trip.

- The student may have found the answer by using division.
  
  \[30 \div 3 = 10 \text{ students}\]
Sample Response: 0 points

A school uses 3 school buses to take students on a field trip. There are 30 students on each bus.

How many students are on the field trip? Enter the number in the box.

9

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly calculate the number of students on the field trip.

- The student may have used 3 school buses and 3 students and found the answer using repeated addition or multiplication.
  
  $3 + 3 + 3 = 3 \times 3$
  
  = 9 students
Grade 3
Math
Practice Test

Question 13

Question and Scoring Guidelines
Question 13

Jeff finds the area of the rectangle shown by counting the unit squares.

Enter an equation to show another way that Jeff can find the area of the rectangle.

Points Possible: 1

Content Cluster: Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Content Standard: Relate area to the operations of multiplication and addition.
   a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. (3.MD.7a)
Scoring Guidelines

Exemplar Response
• $6 \times 7 = 42$

Other Correct Responses
• Any equivalent equation

For this item, a full-credit response includes:
• A correct equation (1 point).
Sample Response: 1 point

Jeff finds the area of the rectangle shown by counting the unit squares.

Enter an equation to show another way that Jeff can find the area of the rectangle.

6 \times 7 = 42

Notes on Scoring

This response earns full credit (1 point) because the student wrote a correct equation that Jeff can use to find the area of the rectangle.

- The student may have thought of the problem as either 6 rows of 7 unit squares or 7 rows of 6 unit squares.
  
6 \times 7 = 42 \text{ unit squares}
Notes on Scoring

This response earns full credit (1 point) because the student wrote a correct equation that Jeff can use to find the area of the rectangle.

- The student may have thought of the problem as 6 rows of 7 unit squares and used repeated addition.

$$7 + 7 + 7 + 7 + 7 + 7 = 42 \text{ unit squares}$$
Sample Response: 0 points

Jeff finds the area of the rectangle shown by counting the unit squares.

Enter an equation to show another way that Jeff can find the area of the rectangle.

6×6=42

Notes on Scoring

This response earns no credit (0 points) because the student did not write an equation that Jeff can use to find the area of the rectangle.

- The student may have incorrectly counted the rows or columns in the rectangle.
  - 6 × 6 ≠ 42
Sample Response: 0 points

Jeff finds the area of the rectangle shown by counting the unit squares.

Enter an equation to show another way that Jeff can find the area of the rectangle.

\[6 + 7 = 42\]

Notes on Scoring

This response earns no credit (0 points) because the student did not write an equation that Jeff can use to find the area of the rectangle.

- The student may have overlooked that repeated addition and multiplication are related and can be used to find area.
  \[6 + 7 \neq 42\] unit squares
Grade 3 Math Practice Test

Question 14

Question and Scoring Guidelines
Question 14

Three number lines are shown.

A. Select a number line that can be used to plot the numbers 1 and $\frac{3}{2}$.

B. Move the two points to the number line to correctly plot the numbers 1 and $\frac{3}{2}$.

• There may be more than one correct answer.

Points Possible: 1

Content Cluster: Develop understanding of fractions as numbers.

Content Standard: Understand a fraction as a number on the number line; represent fractions on a number line diagram.

b. Represent a fraction $\frac{a}{b}$ (which may be greater than one) on a number line diagram by marking off a lengths $\frac{1}{b}$ from 0. Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line. (3.NF.2b)
**Scoring Guidelines**

**Exemplar Response**

![Exemplar Response Diagram]

**Other Correct Responses**

- Placing the points at the correct positions is accepted as “selecting” a number line.

For this item, a full-credit response includes:
- A correct number line (1 point).
Sample Response: 1 point

Three number lines are shown.
A. Select a number line that can be used to plot the numbers 1 and \( \frac{3}{2} \).
B. Move the two points to the number line to correctly plot the numbers 1 and \( \frac{3}{2} \).
• There may be more than one correct answer.

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified a number line that can be used to plot the numbers 1 and \( \frac{3}{2} \), and the student correctly plotted those numbers on the number line.

• The student correctly selected a number line where an interval from 0 to 1 can be marked off by \( \frac{1}{2} \) unit lengths.
• The student correctly placed the numbers 1 and \( \frac{3}{2} \) on the number line.

The directions in Part A ask the student to “Select a number line”. During online testing, when the student “selects” a number line, the other two number lines on the screen will disappear, leaving only the selected number line visible.
Sample Response: 1 point

Three number lines are shown.

A. Select a number line that can be used to plot the numbers 1 and \( \frac{3}{2} \).

B. Move the two points to the number line to correctly plot the numbers 1 and \( \frac{3}{2} \).

• There may be more than one correct answer.

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified a number line that can be used to plot the numbers 1 and \( \frac{3}{2} \), and the student correctly plotted those numbers on the number line.

• The student correctly selected a number line where an interval from 0 to 2 can be marked off by \( \frac{1}{2} \) unit lengths.

• The student correctly placed the numbers 1 and \( \frac{3}{2} \) on the number line.

The directions in Part A ask the student to “Select a number line”. During online testing, when the student “selects” a number line, the other two number lines on the screen will disappear, leaving only the selected number line visible. In this response, placing the points at the correct positions is counted also as “selecting” a number line.
Sample Response: 0 points

Notes on Scoring

This response earns no credit (0 points) because although the student correctly identified a number line that can be used to plot the numbers 1 and $\frac{3}{2}$, the student did not correctly plot those numbers on the number line.

- The student correctly selected a number line where an interval from 0 to 2 can be marked off by $\frac{1}{2}$ unit lengths.
- The student did not correctly place the numbers 1 and $\frac{3}{2}$ on the number line based on the unit lengths marked on the number line.
Sample Response: 0 points

Three number lines are shown.

A. Select a number line that can be used to plot the numbers 1 and $\frac{3}{2}$.

B. Move the two points to the number line to correctly plot the numbers 1 and $\frac{3}{2}$.

• There may be more than one correct answer.

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify a number line that can be used to plot the numbers 1 and $\frac{3}{2}$.

• The student may have thought he/she only needed to plot the numbers 1 and $\frac{3}{2}$ on any number line.

• Based on the unit lengths marked on the number line, the student did not correctly place the numbers 1 and $\frac{3}{2}$. The length from 0 to 1 on the number line is the same distance as the length from 1 to $\frac{3}{2}$ on the number line.
Grade 3 Math Practice Test

Question 15

Question and Scoring Guidelines
Fatima asks people what their favorite sports are. She records their answers on the bar graph shown.

How many more people like baseball than hockey? Enter the number in the box.

Points Possible: 1

Content Cluster: Represent and interpret data.

Content Standard: Create scaled picture graphs to represent a data set with several categories. Create scaled bar graphs to represent a data set with several categories. Solve two-step “how many more” and “how many less” problems using information presented in the scaled graphs. For example, create a bar graph in which each square in the bar graph might represent 5 pets, then determine how many more/less in two given categories. (3.MD.3)
Scoring Guidelines

Exemplar Response

• 3

Other Correct Responses

• Any equivalent value

For this item, a full-credit response includes:

• The correct value (1 point).
Grade 3
Math
Practice Test

Question 15

Sample Responses
Sample Response: 1 point

Fatima asks people what their favorite sports are. She records their answers on the bar graph shown.

How many more people like baseball than hockey? Enter the number in the box.

3

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified how many more people like baseball than hockey.

- The student may have found the answer using subtraction.
  10 people like baseball and 7 people like hockey: 10 - 7 = 3
Fatima asks people what their favorite sports are. She records their answers on the bar graph shown.

How many more people like baseball than hockey? Enter the number in the box.

3.0
Notes on Scoring

This response earns full credit (1 point) because the student correctly identified how many more people like baseball than hockey.

• The student may have found the answer using subtraction.
  
  10 people like baseball and 7 people like hockey: 10.0 – 7.0 = 3.0

While decimals are not introduced in the standards until grade 4, a student can earn credit at grade 3 by identifying an equivalent value to a correct response.
Fatima asks people what their favorite sports are. She records their answers on the bar graph shown.

How many more people like baseball than hockey? Enter the number in the box.

4

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify how many more people like baseball than hockey.

- The student may have made a subtraction error.
  10 people like baseball and 7 people like hockey: 10 – 7 ≠ 4
Sample Response: 0 points

Fatima asks people what their favorite sports are. She records their answers on the bar graph shown.

How many more people like baseball than hockey? Enter the number in the box.

2

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify how many more people like baseball than hockey.

- The student may have misread the graph and thought that 8 people liked hockey.
  
  10 people like baseball and 8 people like hockey: 10 - 8 = 2
Grade 3 Math Practice Test

Question 16

Question and Scoring Guidelines
A division equation is shown.

$$32 \div 8 = 4$$

Create a related multiplication equation using the same three numbers. Enter the equation in the box.

**Points Possible:** 1

**Content Cluster:** Multiply and divide within 100.

**Content Standard:** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division, e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$, or properties of operations. Limit to division without remainders. By the end of grade 3, know from memory all products of two one-digit numbers. (3.OA.7)
**Scoring Guidelines**

**Exemplar Response**
- \(4 \times 8 = 32\)

**Other Correct Responses**
- \(8 \times 4 = 32\)

For this item, a full-credit response includes:
- A correct equation (1 point).
Sample Response: 1 point

A division equation is shown.

\[ 32 \div 8 = 4 \]

Create a related multiplication equation using the same three numbers. Enter the equation in the box.

\[ 8 \times 4 = 32 \]

Notes on Scoring

This response earns full credit (1 point) because the student correctly created a related multiplication equation using the same three numbers from the equation given in the question.
Sample Response: 1 point

A division equation is shown.

\[32 \div 8 = 4\]

Create a related multiplication equation using the same three numbers. Enter the equation in the box.

\[4 \times 8 = 32\]

Notes on Scoring

This response earns full credit (1 point) because the student correctly created a related multiplication equation using the same three numbers from the equation given in the question.
Sample Response: 0 points

A division equation is shown.

\[ 32 \div 8 = 4 \]

Create a related multiplication equation using the same three numbers. Enter the equation in the box.

\[ 32 \div 4 = 8 \]

Notes on Scoring

This response earns no credit (0 points) because the student created a related division equation instead of a related multiplication equation using the same three numbers from the equation given in the question.
Sample Response: 0 points

A division equation is shown.

\[32 \div 8 = 4\]

Create a related multiplication equation using the same three numbers. Enter the equation in the box.

\[32 \times \frac{1}{4} = 8\]

Notes on Scoring

This response earns no credit (0 points) because the student created a related multiplication equation that did not use the same three numbers from the equation given in the question.
Grade 3
Math
Practice Test

Question 17

Question and Scoring Guidelines
Question 17

A rectangle is shown.

Which rectangle has the same perimeter as the one shown?

(A) 

(C) 

(B) 

(D) 

Points Possible: 1

Content Cluster: Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Content Standard: Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. (3.MD.8)
**Scoring Guidelines**

**Rationale for Option A:** This is incorrect. The student may have identified that the rectangle is 9 unit squares wide, and thought that because the rectangle shown is 9 unit squares wide, they have the same perimeter.

**Rationale for Option B: Key** - The student identified that the rectangle has the same perimeter, 26 units, as the given rectangle.

**Rationale for Option C:** This is incorrect. The student may have identified that the rectangle is 4 unit squares tall and thought that because the rectangle shown is 4 unit squares tall, they have the same perimeter.

**Rationale for Option D:** This is incorrect. The student may have determined that this rectangle and the given rectangle have the same area, and incorrectly concluded that they therefore have the same perimeter.

**Sample Response: 1 point**

![Image of rectangles](image-url)
Grade 3
Math
Practice Test
Question 18

Question and Scoring Guidelines
Question 18

Which fraction is equivalent to 4?

A. \( \frac{1}{4} \)

B. \( \frac{4}{1} \)

C. \( \frac{2}{2} \)

D. \( \frac{4}{4} \)

Points Possible: 1

Content Cluster: Develop understanding of fractions as numbers.

Content Standard: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form \( \frac{3}{1} \), recognize that \( \frac{6}{1} = 6 \); locate \( \frac{4}{4} \) and 1 at the same point of a number line diagram. (3.NF.3c)
Scoring Guidelines

Rationale for Option A: This is incorrect. The student may have thought that 4 whole units is equivalent to $\frac{1}{4}$ because the denominator represents the 4 whole units.

Rationale for Option B: Key - The student identified that $\frac{4}{1}$ is equivalent to 4 wholes.

Rationale for Option C: This is incorrect. The student may have thought that 4 whole units is equivalent to $\frac{2}{2}$ since the 2 in the numerator and the 2 in the denominator add up to 4.

Rationale for Option D: This is incorrect. The student may have thought that 4 whole units is equivalent to $\frac{4}{4}$ since both the numerator and the denominator are 4.

Sample Response: 1 point
Grade 3
Math
Practice Test

Question 19

Question and Scoring Guidelines
Question 19

Sam and Tessa each have a container of water, as shown.

What is the total number of liters (L) of water that Sam and Tessa have? Enter the number in the box.

<table>
<thead>
<tr>
<th>liters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

Points Possible: 1

Content Cluster: Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

Content Standard: Measure and estimate liquid volumes and masses of objects using standard units of grams, kilograms, and liters. Add, subtract, multiply, or divide whole numbers to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (3.MD.2)
Scoring Guidelines

Exemplar Response
• 13 liters

Other Correct Responses
• Any equivalent value

For this item, a full-credit response includes:
• The correct value (1 point).
Grade 3
Math
Practice Test

Question 19

Sample Responses
Sample Response: 1 point

Sam and Tessa each have a container of water, as shown.

What is the total number of liters (L) of water that Sam and Tessa have? Enter the number in the box.

13 liters

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified the total number of liters (L) of water that Sam and Tessa have.

- The student may have found the answer by using the images of the water containers as number lines to help them count.
  - Starting at 8 liters from Sam’s container and counting up using the number line on Tessa’s container:
    8, 9, 10, 11, 12, 13 liters
  - Starting at 5 liters from Tessa’s container and counting up using the number line on Sam’s container:
    5, 6, 7, 8, 9, 10, 11, 12, 13 liters
Sample Response: 1 point

Sam and Tessa each have a container of water, as shown.

What is the total number of liters (L) of water that Sam and Tessa have? Enter the number in the box.

13.0

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified the total number of liters (L) of water that Sam and Tessa have.

- The student may have found the answer using addition.
  - Sam has 8 liters of water and Tessa has 5 liters of water.
    \[ 8.0 + 5.0 = 13.0 \text{ liters} \]

While decimals are not introduced in the standards until grade 4, a student can earn credit at grade 3 by identifying an equivalent value to a correct response.
Sample Response: 0 points

Sam and Tessa each have a container of water, as shown.

What is the total number of liters (L) of water that Sam and Tessa have? Enter the number in the box.

15 liters

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the total number of liters (L) of water that Sam and Tessa have.

- The student may have misread the amount of water in both containers and added them together.
  - Sam has 9 liters and Tessa has 6 liters of water.
    - $9 + 6 = 15$ liters
Sample Response: 0 points

Sam and Tessa each have a container of water, as shown.

What is the total number of liters (L) of water that Sam and Tessa have? Enter the number in the box.

12 liters

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the total number of liters (L) of water that Sam and Tessa have.

- The student may have misread the amount of water in Sam’s container and added it together with the amount of water in Tessa’s container.
  - Sam has 7 liters and Tessa has 5 liters of water.
    - $7 + 5 = 12$ liters
Grade 3
Math
Practice Test

Question 20

Question and Scoring Guidelines
Question 20

Two statements with missing numbers are shown.

\[ \frac{2}{3} > \frac{\Box}{6} \]

\[ \frac{\Box}{4} < \frac{3}{4} \]

Which value for the missing numerators will make both statements true?

A. 2  
B. 3  
C. 4  
D. 5

Points Possible: 1

**Content Cluster:** Develop understanding of fractions as numbers.

**Content Standard:** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. (3.NF.3d)
Scoring Guidelines

Rationale for Option A: **Key** – The student correctly determined that each set of comparisons must contain 2 as the numerator.

Rationale for Option B: This is incorrect. The student may have chosen 3 because $\frac{2}{3}$ is greater than $\frac{3}{6}$; however, $\frac{3}{4}$ is not less than $\frac{3}{4}$.

Rationale for Option C: This is incorrect. The student may have chosen 4 because $\frac{2}{3}$ is equivalent to $\frac{4}{6}$; however, “less than” does not include equivalent values, and $\frac{4}{4}$ is not less than $\frac{3}{4}$.

Rationale for Option D: This is incorrect. The student may have incorrectly identified the inequality symbols and chose 5 even though it satisfies neither of the two comparisons.

**Sample Response: 1 point**

Two statements with missing numbers are shown.

\[
\frac{2}{3} > \frac{\square}{6}
\]

\[
\frac{\square}{4} < \frac{3}{4}
\]

Which value for the missing numerators will make both statements true?

- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5
Grade 3 Math Practice Test

Question 21

Question and Scoring Guidelines
Question 21

A figure is shown.

What is the area, in square centimeters (sq cm), of the figure? Enter the number in the box.

Points Possible: 1

**Content Cluster:** Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

**Content Standard:** Relate area to the operations of multiplication and addition.

a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. (3.MD.7a)
Scoring Guidelines

Exemplar Response

- 46

Other Correct Responses

- Any equivalent value

For this item, a full-credit response includes:

- The correct value (1 point).
Grade 3 Math Practice Test

Question 21

Sample Responses
Sample Response: 1 point

A figure is shown.

What is the area, in square centimeters (sq cm), of the figure? Enter the number in the box.

\[46\] square centimeters

Notes on Scoring

This response earns full credit (1 point) because the student correctly calculated the area of the figure.

- The student may have split the figure into two shapes and found the areas of both shapes, and then added the areas of the two shapes together.
  
  \[
  \begin{align*}
  \text{Shape 1 (square)}: & \quad \text{Shape 2 (rectangle)}: \\
  2 \text{ cm} \times 2 \text{ cm} = & \quad (5 \text{ cm} + 2 \text{ cm}) \times (8 \text{ cm} - 2 \text{ cm}) \\
  4 \text{ square cm} & \quad 7 \text{ cm} \times 6 \text{ cm} = 42 \text{ square cm} \\
  & \quad 4 + 42 = 46 \text{ square cm}
  \end{align*}
  \]

- The student may have added a 5 cm \(\times\) 2 cm rectangle to the lower left corner of the figure so the entire figure was an 8 cm \(\times\) 7 cm rectangle with an area of 56 square cm. The student then may have subtracted the area of the 5 cm \(\times\) 2 cm rectangle to get his/her answer.
  
  \[
  \begin{align*}
  8 \text{ cm} \times 7 \text{ cm} &= 56 \text{ square cm} \\
  5 \text{ cm} \times 2 \text{ cm} &= 10 \text{ square cm} \\
  56 - 10 &= 46 \text{ square cm}
  \end{align*}
  \]
Sample Response: 0 points

A figure is shown.

What is the area, in square centimeters (sq cm), of the figure? Enter the number in the box.

44 square centimeters

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly calculate the area of the figure.

- The student may have split the figure into two shapes and incorrectly found the area of one of the shapes, and then added the areas of the two shapes together.

  Shape 1 (square):
  \[2 \text{ cm} \times 2 \text{ cm} = 4 \text{ square cm}\]

  Shape 2 (rectangle):
  \[5 \text{ cm} \times 8 \text{ cm} = 40 \text{ square cm}\]

  \[4 + 40 = 44 \text{ square cm}\]
Sample Response: 0 points

A figure is shown.

What is the area, in square centimeters (sq cm), of the figure? Enter the number in the box.

26 square centimeters

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly calculate the area of the figure.

- The student may have split the figure into two shapes and incorrectly found the areas of both shapes, and then added the areas of the two shapes together.
  
  Shape 1 (rectangle):  
  \[2 \text{ cm} \times 5 \text{ cm} = 10 \text{ square cm}\]

  Shape 2 (rectangle):  
  \[2 \text{ cm} \times 8 \text{ cm} = 16 \text{ square cm}\]

  \[10 + 16 = 26 \text{ square cm}\]
Grade 3
Math
Practice Test

Question 22

Question and Scoring Guidelines
Question 22

Which number rounds to 700 when rounded to the nearest hundred?

A  609
B  649
C  748
D  752

Points Possible: 1

Content Cluster: Use place value understanding and properties of operations to perform multi-digit arithmetic.

Content Standard: Use place value understanding to round whole numbers to the nearest 10 or 100. (3.NBT.1)
Scoring Guidelines

Rationale for Option A: This is incorrect. The student may have thought that the 9 was in the tens place and rounded to 700.

Rationale for Option B: This is incorrect. The student may have rounded 649 to 650 and then rounded to the nearest hundred to get 700.

Rationale for Option C: Key - The student correctly identified that since 4 is in the tens place, 748 rounds to 700 when rounded to the nearest hundred.

Rationale for Option D: This is incorrect. The student may have thought that you round down when the place value to the right of the place you are rounding to is a 5.

Sample Response: 1 point
Question 23

Which example involves finding area?

A. packing a box
B. painting a wall
C. weighing a fruit
D. measuring a height

Points Possible: 1

Content Cluster: Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Content Standard: Recognize area as an attribute of plane figures and understand concepts of area measurement.

b. A plane figure which can be covered without gaps or overlaps by $n$ unit squares is said to have an area of $n$ square units.

(3.MD.5b)
Scoring Guidelines

Rationale for Option A: This is incorrect. The student may have confused the meaning of “area” with that of “volume”.

Rationale for Option B: **Key** - The student correctly identified that painting a wall requires knowing how much two-dimensional space needs to be covered, which requires calculating area.

Rationale for Option C: This is incorrect. The student may have confused the meaning of “area” with that of “weight”.

Rationale for Option D: This is incorrect. The student may have confused the meaning of “length” with that of “area”.

Sample Response: 1 point

Which example involves finding area?

- A. packing a box
- B. painting a wall
- C. weighing a fruit
- D. measuring a height
Question 24

The denominators of two fractions are shown.

Move a number or symbol to each blank box to create a true comparison.

\[
\frac{3}{\text{[ ]}} \quad \frac{\text{[ ]}}{3}
\]

[Points Possible: 1]

**Content Cluster:** Develop understanding of fractions as numbers.

**Content Standard:** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or < and justify the conclusions, e.g., by using a visual fraction model. (3.NF.3d)
**Scoring Guidelines**

**Exemplar Response**

- $\frac{5}{3} < \frac{7}{3}$

**Other Correct Responses**

- $\frac{7}{3} > \frac{5}{3}$

For this item, a full-credit response includes:

- A correct statement (1 point).
Grade 3
Math
Practice Test

Question 24

Sample Responses
Sample Response: 1 point

The denominators of two fractions are shown.

Move a number or symbol to each blank box to create a true comparison.

\[
\begin{array}{c}
\frac{5}{3} \\
< \\
\frac{7}{3}
\end{array}
\]

Notes on Scoring

This response earns full credit (1 point) because the student created a correct comparison.

- The student may have created a number line to visually compare the values of the two fractions and recognized that \( \frac{5}{3} \) is less than \( \frac{7}{3} \).
Sample Response: 1 point

The denominators of two fractions are shown.

Move a number or symbol to each blank box to create a true comparison.

\[
\begin{array}{c}
7 \\
3 \\
\hline
> \\
\hline
5 \\
3 \\
\end{array}
\]

Notes on Scoring

This response earns full credit (1 point) because the student created a correct comparison.

- The student may have created a number line to visually compare the values of the two fractions and recognized that \( \frac{7}{3} \) is greater than \( \frac{5}{3} \).
Sample Response: 0 points

The denominators of two fractions are shown.

Move a number or symbol to each blank box to create a true comparison.

\[
\begin{array}{c}
\frac{7}{3} < \frac{5}{3}
\end{array}
\]

Notes on Scoring

This response earns no credit (0 points) because the student created an incorrect comparison.

- The student may have compared \( \frac{5}{3} \) and \( \frac{7}{3} \) to one whole and incorrectly identified \( \frac{7}{3} \) as less than \( \frac{5}{3} \) because \( \frac{5}{3} \) is closer to one whole than \( \frac{7}{3} \).
Sample Response: 0 points

The denominators of two fractions are shown.

Move a number or symbol to each blank box to create a true comparison.

\[
\frac{5}{3} \quad > \quad \frac{7}{3}
\]

Notes on Scoring

This response earns no credit (0 points) because the student created an incorrect comparison.

- The student may have compared \(\frac{5}{3}\) and \(\frac{7}{3}\) to one whole and incorrectly identified \(\frac{5}{3}\) as greater than \(\frac{7}{3}\) because \(\frac{5}{3}\) is closer to one whole than \(\frac{7}{3}\).
Grade 3 Math Practice Test

Question 25

Question and Scoring Guidelines
The number of classes and the number of students in each class at Mountain Elementary School are shown.

Complete the table to show the total number of students in each grade.

<table>
<thead>
<tr>
<th></th>
<th>Number of Classes</th>
<th>Number of Students in Each Class</th>
<th>Total Number of Students in Each Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>6</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>First Grade</td>
<td>2</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Second Grade</td>
<td>4</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Third Grade</td>
<td>3</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

**Points Possible: 1**

**Content Cluster:** Use place value understanding and properties of operations to perform multi-digit arithmetic.

**Content Standard:** Multiply one-digit whole numbers by multiples of 10 in the range 10–90, e.g., 9 × 80, 5 × 60, using strategies based on place value and properties of operations. (3.NBT.3)
Scoring Guidelines

Exemplar Response

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number of Classes</th>
<th>Number of Students in Each Class</th>
<th>Total Number of Students in Each Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>6</td>
<td>30</td>
<td>180</td>
</tr>
<tr>
<td>First Grade</td>
<td>2</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Second Grade</td>
<td>4</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>Third Grade</td>
<td>3</td>
<td>30</td>
<td>90</td>
</tr>
</tbody>
</table>

Other Correct Responses

- Any equivalent values

For this item, a full-credit response includes:

- Four correct values (1 point).
Grade 3 Math Practice Test

Question 25

Sample Responses
Sample Response: 1 point

The number of classes and the number of students in each class at Mountain Elementary School are shown. Complete the table to show the total number of students in each grade.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number of Classes</th>
<th>Number of Students in Each Class</th>
<th>Total Number of Students in Each Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>6</td>
<td>30</td>
<td>180</td>
</tr>
<tr>
<td>First Grade</td>
<td>2</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Second Grade</td>
<td>4</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>Third Grade</td>
<td>3</td>
<td>30</td>
<td>90</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified the total number of students in each grade.

- The student may have multiplied the number of classes by the number of students in each class to determine the total number of students in each grade.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number of Classes</th>
<th>Number of Students in Each Class</th>
<th>Number of Classes × Number of Students in Each Class</th>
<th>Total Number of Students in Each Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>5</td>
<td>30</td>
<td>5 × 30 = 150</td>
<td>180</td>
</tr>
<tr>
<td>First Grade</td>
<td>2</td>
<td>20</td>
<td>2 × 20 = 40</td>
<td>40</td>
</tr>
<tr>
<td>Second Grade</td>
<td>4</td>
<td>20</td>
<td>4 × 20 = 80</td>
<td>80</td>
</tr>
<tr>
<td>Third Grade</td>
<td>3</td>
<td>30</td>
<td>3 × 30 = 90</td>
<td>90</td>
</tr>
</tbody>
</table>
Sample Response: 1 point

The number of classes and the number of students in each class at Mountain Elementary School are shown.

Complete the table to show the total number of students in each grade.

<table>
<thead>
<tr>
<th></th>
<th>Number of Classes</th>
<th>Number of Students in Each Class</th>
<th>Total Number of Students in Each Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>6</td>
<td>30</td>
<td>180.0</td>
</tr>
<tr>
<td>First Grade</td>
<td>2</td>
<td>20</td>
<td>40.0</td>
</tr>
<tr>
<td>Second Grade</td>
<td>4</td>
<td>20</td>
<td>80.0</td>
</tr>
<tr>
<td>Third Grade</td>
<td>3</td>
<td>30</td>
<td>90.0</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified the total number of students in each grade.

- The student may have multiplied the number of classes by the number of students in each class to determine an equivalent value to the total number of students in each grade.

While decimals are not introduced in the standards until grade 4 and students are not expected to be able to perform operations with decimals until grade 5, a student can earn credit in grade 3 by identifying an equivalent value to a correct response.
Sample Response: 0 points

The number of classes and the number of students in each class at Mountain Elementary School are shown. Complete the table to show the total number of students in each grade.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number of Classes</th>
<th>Number of Students in Each Class</th>
<th>Total Number of Students in Each Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>6</td>
<td>30</td>
<td>36</td>
</tr>
<tr>
<td>First Grade</td>
<td>2</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Second Grade</td>
<td>4</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>Third Grade</td>
<td>3</td>
<td>30</td>
<td>33</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns no credit (0 points) because the student incorrectly identified the total number of students in each grade.
- The student may have added the number of classes to the number of students in each class instead of multiplying to determine the total number of students in each grade.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number of Classes</th>
<th>Number of Students in Each Class</th>
<th>Number of Classes + Number of Students in Each Class</th>
<th>Total Number of Students in Each Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>6</td>
<td>30</td>
<td>6 + 30 = 36</td>
<td>36</td>
</tr>
<tr>
<td>First Grade</td>
<td>2</td>
<td>20</td>
<td>2 + 20 = 22</td>
<td>22</td>
</tr>
<tr>
<td>Second Grade</td>
<td>4</td>
<td>20</td>
<td>4 + 20 = 24</td>
<td>24</td>
</tr>
<tr>
<td>Third Grade</td>
<td>3</td>
<td>30</td>
<td>3 + 30 = 33</td>
<td>33</td>
</tr>
</tbody>
</table>
The number of classes and the number of students in each class at Mountain Elementary School are shown. Complete the table to show the total number of students in each grade.

<table>
<thead>
<tr>
<th>Number of Classes</th>
<th>Number of Students In Each Class</th>
<th>Total Number of Students In Each Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>First Grade</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Second Grade</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Third Grade</td>
<td>3</td>
<td>30</td>
</tr>
</tbody>
</table>

**Notes on Scoring**

This response earns no credit (0 points) because the student incorrectly identified the total number of students in each grade.

- The student may have divided the number of students in each class by the number of classes instead of multiplying to determine the total number of students in each grade.

<table>
<thead>
<tr>
<th>Number of Classes</th>
<th>Number of Students In Each Class</th>
<th>Number of Students In Each Class ÷ Number of Classes</th>
<th>Total Number of Students In Each Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>6</td>
<td>30 ÷ 6 = 5</td>
<td>5</td>
</tr>
<tr>
<td>First Grade</td>
<td>2</td>
<td>20 ÷ 2 = 10</td>
<td>10</td>
</tr>
<tr>
<td>Second Grade</td>
<td>4</td>
<td>20 ÷ 4 = 5</td>
<td>5</td>
</tr>
<tr>
<td>Third Grade</td>
<td>3</td>
<td>30 ÷ 3 = 10</td>
<td>10</td>
</tr>
</tbody>
</table>

6 × 30 ≠ 5
2 × 20 ≠ 10
4 × 20 ≠ 5
3 × 30 ≠ 10