Ohio
Department of Education
Ohio's State Tests
ITEM RELEASE
SPRING 2018
GRADE 3
MATHEMATICS

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Grade 3 Math
Spring 2018 Item Release
Content Summary and Answer Key

Question No.*	Item Type	Content Cluster	Content Standard	Answer Key	Points
1	Equation Item	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). *(3.MD.6)*	---	1 point
9	Equation Item	Use place value understanding and properties of operations to perform multi-digit arithmetic.	Use place value understanding to round whole numbers to the nearest 10 or 100. *(3.NBT.1)*	---	1 point
11	Multiple Choice	Solve problems involving the four operations, and identify and explain patterns in arithmetic.	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *(3.OA.8)*	A	1 point
13	Graphic Response, Equation Item	Develop understanding of fractions as numbers.	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. *(3.NF.3)*	---	2 points
16	Graphic Response	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	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)*	---	2 points

** The question number matches the item number in the Item Level Report in the Online Reporting System. The items are numbered sequentially in the practice site.*

Grade 3 Math
Spring 2018 Item Release
Content Summary and Answer Key

Question No.*	Item Type	Content Cluster	Content Standard	Answer Key	Points
19	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. *(3.NF.2)* *b*. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.	---	2 points
21	Multiple Choice	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide 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)*	A	1 point
22	Equation Item	Multiply and divide within 100.	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(3.OA.7)*	---	1 point

** The question number matches the item number in the Item Level Report in the Online Reporting System. The items are numbered sequentially in the practice site.*

Grade 3 Math
Spring 2018 Item Release
Content Summary and Answer Key

Question No.*	Item Type	Content Cluster	Content Standard	Answer Key	Points
24	Equation Item	Reason with shapes and their attributes.	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)*	---	1 point
25	Multiple Choice	Understand properties of multiplication and the relationship between multiplication and division.	Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property) (3.OA.5)*	C	1 point
29	Table Item	Use place value understanding and properties of operations to perform multi-digit arithmetic.	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)*	---	1 point
32	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. *(3.MD.7)* *b.* Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	---	1 point

** The question number matches the item number in the Item Level Report in the Online Reporting System. The items are numbered sequentially in the practice site.*

Grade 3 Math
Spring 2018 Item Release
Content Summary and Answer Key

Question No.*	Item Type	Content Cluster	Content Standard	Answer Key	Points
34	Equation Item	Represent and solve problems involving multiplication and division.	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. *(3.OA.3)*	---	1 point
35	Table Item	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram. *(3.MD.1)*	---	2 points
40	Graphic Response	Represent and interpret data.	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets. (3.MD.3)*	---	1 point
42	Table Item	Represent and solve problems involving multiplication and division.	Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7. (3.OA.1)*	---	1 point

** The question number matches the item number in the Item Level Report in the Online Reporting System. The items are numbered sequentially in the practice site.*

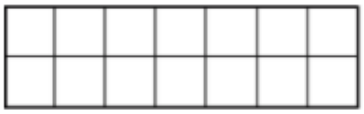
Grade 3
Math
Spring 2018 Item Release

Question 1

Question and Scoring Guidelines

Question 1

A rectangle is shown.



= 1 square meter

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

square meters

1	2	3
4	5	6
7	8	9
0	.	

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

- 14

Other Correct Responses

- Any equivalent value

For this item, a full-credit response includes:

- The correct value (1 point).

Grade 3
Math
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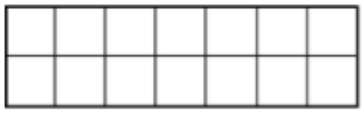
Question 1

Sample Responses

Sample Response: 1 point

A rectangle is shown.



= 1 square meter

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

14 *square meters*

1	2	3
4	5	6
7	8	9
0	.	$\frac{\square}{\square}$

Notes on Scoring

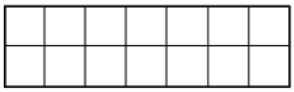
This response earns full credit (1 point) because it identifies the correct area, in square meters, of the rectangle.

- The student may count each of the 14 squares to find the area in square meters.

1	2	3	4	5	6	7
8	9	10	11	12	13	14

Sample Response: 1 point

A rectangle is shown.



= 1 square meter

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

$\frac{14}{1}$ *square meters*

1	2	3
4	5	6
7	8	9
0	.	$\frac{\square}{\square}$

Notes on Scoring

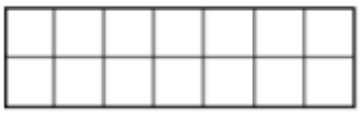
This response earns full credit (1 point) because it identifies the correct area, in square meters, of the rectangle.

- The student may count each of the 14 squares and identify a value equivalent to 14 square meters.

1	2	3	4	5	6	7
8	9	10	11	12	13	14

Sample Response: 0 points

A rectangle is shown.



= 1 square meter

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

7 *square meters*

1	2	3
4	5	6
7	8	9
0	.	

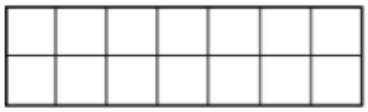
Notes on Scoring

This response earns no credit (0 points) because it identifies an incorrect area, in square meters, of the rectangle.

- The student may only count one row of 7 square meters.

Sample Response: 0 points

A rectangle is shown.



= 1 square meter

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

1 *square meters*

Notes on Scoring

This response earns no credit (0 points) because it identifies an incorrect area, in square meters, of the rectangle.

- The student may think the rectangle is 1 whole square meter instead of recognizing each square inside the rectangle represents 1 square meter.

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Question 9

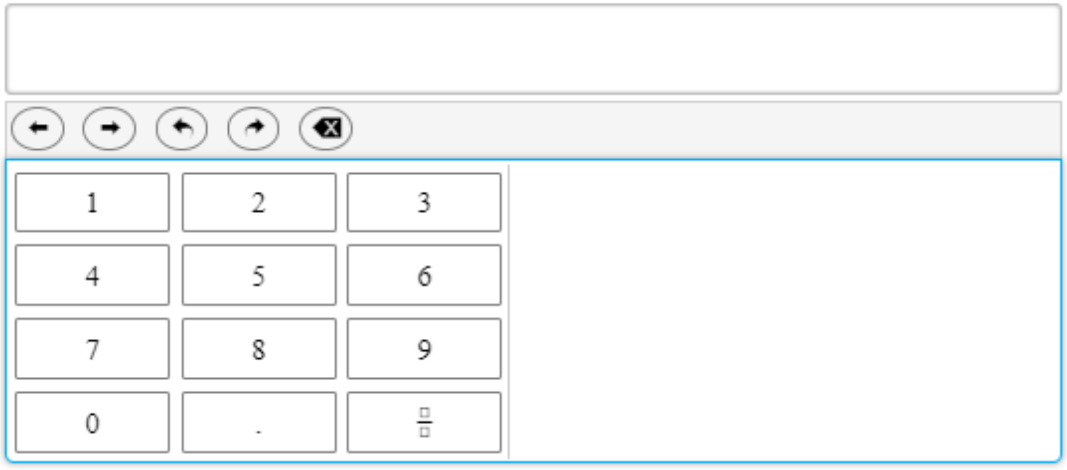
Question and Scoring Guidelines

Question 9

Ryan wrote a number on his paper.

- His number rounds to 350 when rounded to the nearest ten.
- His number rounds to 300 when rounded to the nearest hundred.

Enter a number that Ryan could have written.



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

Exemplar Response

- 349

Other Correct Responses

- Any value from 345 and 350, inclusive

For this item, a full-credit response includes:

- A correct value (1 point).

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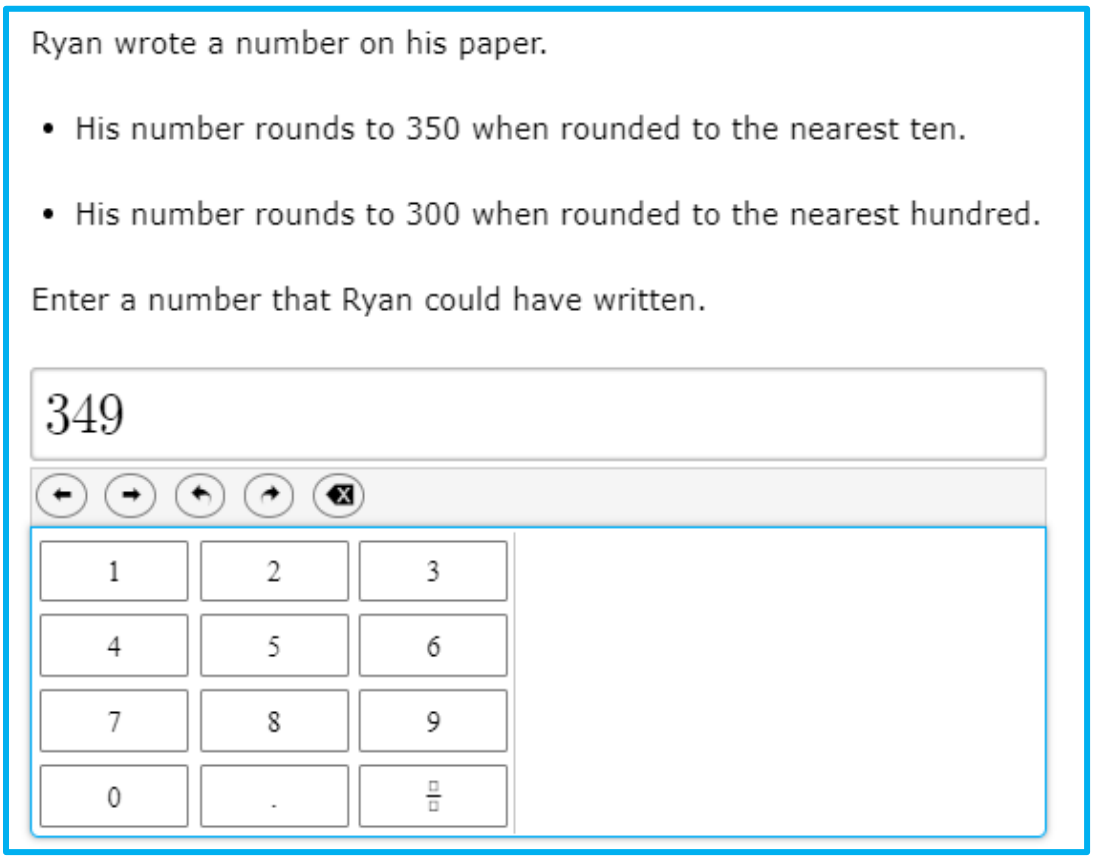
Question 9

Sample Responses

Sample Response: 1 point



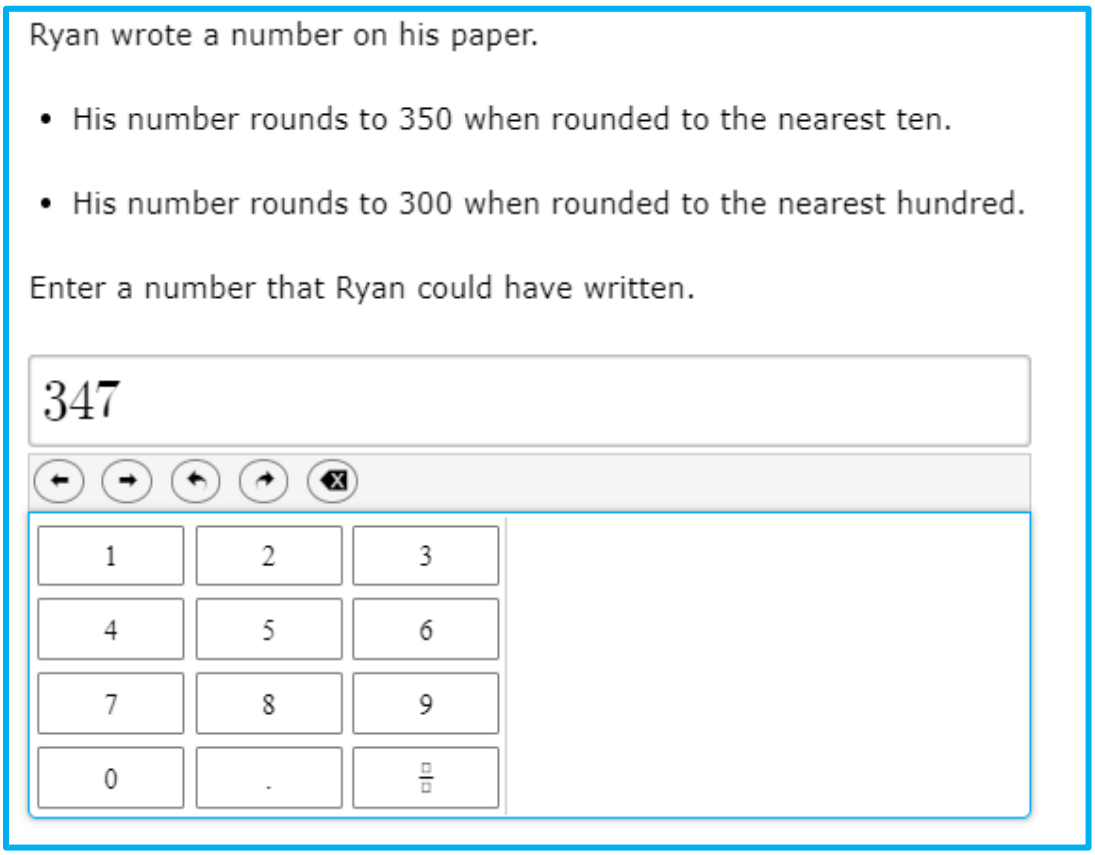
Notes on Scoring

This response earns full credit (1 point) because it identifies a number that rounds to 350 when rounding to the nearest ten and rounds to 300 when rounding to the nearest hundred.

- The student may create a number line and recognize that 349 rounds to 350 when rounding to the nearest ten because 349 is closer to 350 than 340.

- The student may create a number line and recognize that 349 rounds to 300 when rounding to the nearest hundred because 349 is closer to 300 than 400.

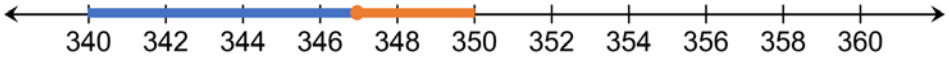
Sample Response: 1 point



Notes on Scoring

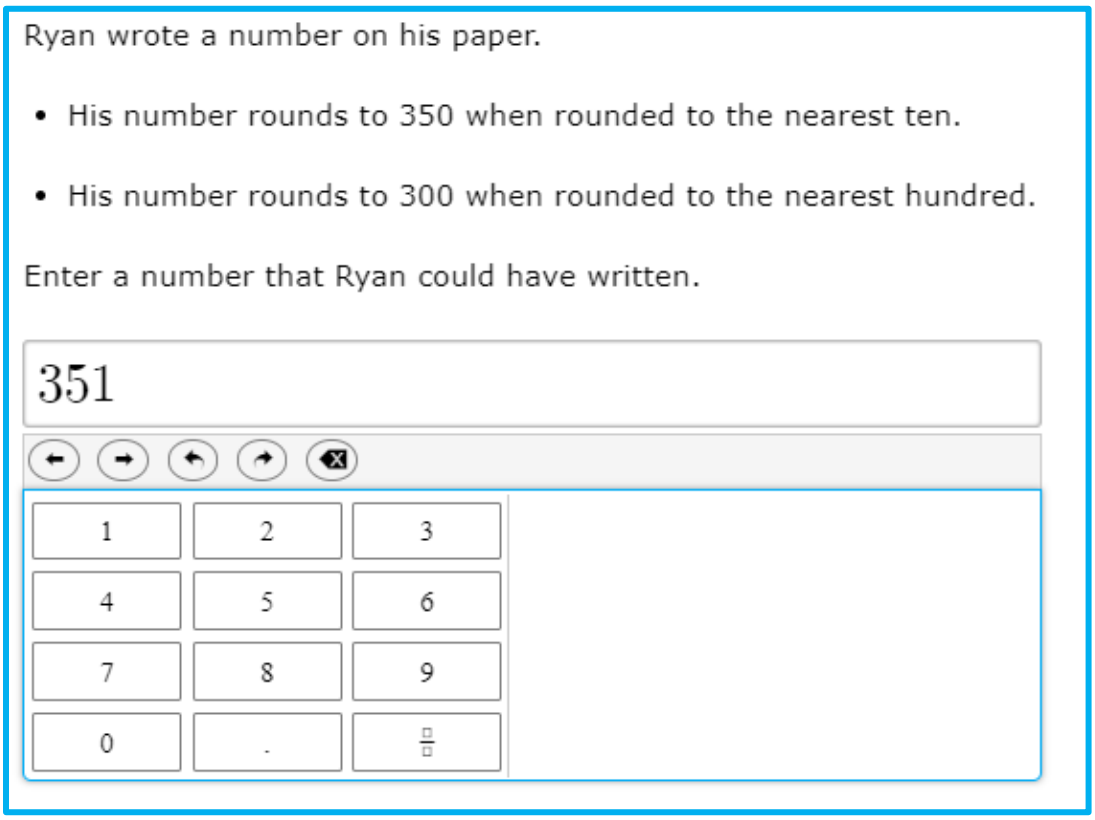
This response earns full credit (1 point) because it identifies a number that rounds to 350 when rounding to the nearest ten and rounds to 300 when rounding to the nearest hundred.

- The student may create a number line and recognize that 347 rounds to 350 when rounding to the nearest ten because 347 is closer to 350 than 340.



- The student may create a number line and recognize that 347 rounds to 300 when rounding to the nearest hundred because 347 is closer to 300 than 400.

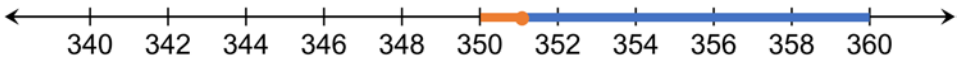
Sample Response: 0 points



Notes on Scoring

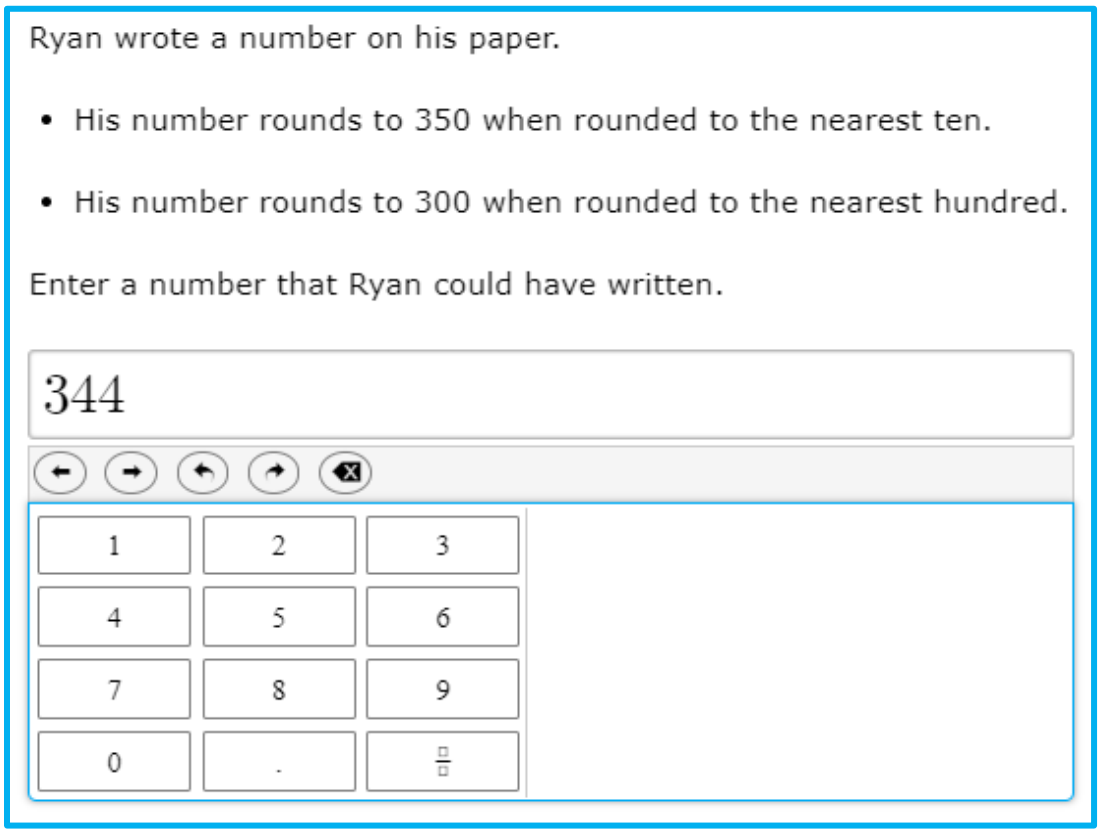
This response earns no credit (0 points) because it identifies a number that rounds to 350 when rounding to the nearest ten but does not round to 300 when rounding to nearest hundred.

- The student may create a number line and recognize that 351 rounds to 350 when rounding to the nearest ten.



- The student may create a number line but miss that 351 rounds to 400 instead of 300 when rounding to the nearest hundred.

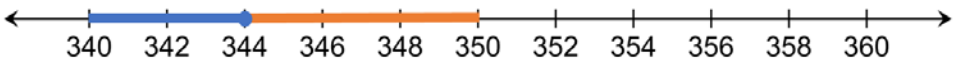
Sample Response: 0 points



Notes on Scoring

This response earns no credit (0 points) because it identifies a number that rounds to 300 when rounding to the nearest hundred but does not round to 350 when rounding to nearest ten.

- The student may create a number line but miss that 344 rounds to 340 instead of 350 when rounding to the nearest ten.



- The student may create a number line and recognize that 344 rounds to 300 when rounding to the nearest hundred.

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Question 11

Question and Scoring Guidelines

Question 11

The art teacher has 74 brushes. One art class uses 26 brushes. The rest of the brushes are put into 8 boxes. Each box has the same number of brushes.

How many brushes are in each box?

Ⓐ 6

Ⓑ 9

Ⓒ 40

Ⓓ 48

Points Possible: 1

Content Cluster: Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Content Standard: Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *(3.OA.8)*

Scoring Guidelines

Rationale for Option A: **Key** – The student correctly calculates the number of unused brushes and the number of brushes in each box.

Rationale for Option B: This is incorrect. The student may divide 74 by 8 without subtracting the 26 brushes used by the art class.

Rationale for Option C: This is incorrect. The student may calculate the number of unused brushes but then subtract 8 instead of dividing by 8.

Rationale for Option D: This is incorrect. The student may only calculate the number of unused brushes and not the number of brushes in each box.

Sample Response: 1 point

The art teacher has 74 brushes. One art class uses 26 brushes. The rest of the brushes are put into 8 boxes. Each box has the same number of brushes.

How many brushes are in each box?

- ● 6
- Ⓑ 9
- Ⓒ 40
- Ⓓ 48

Grade 3
Math
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Question 13

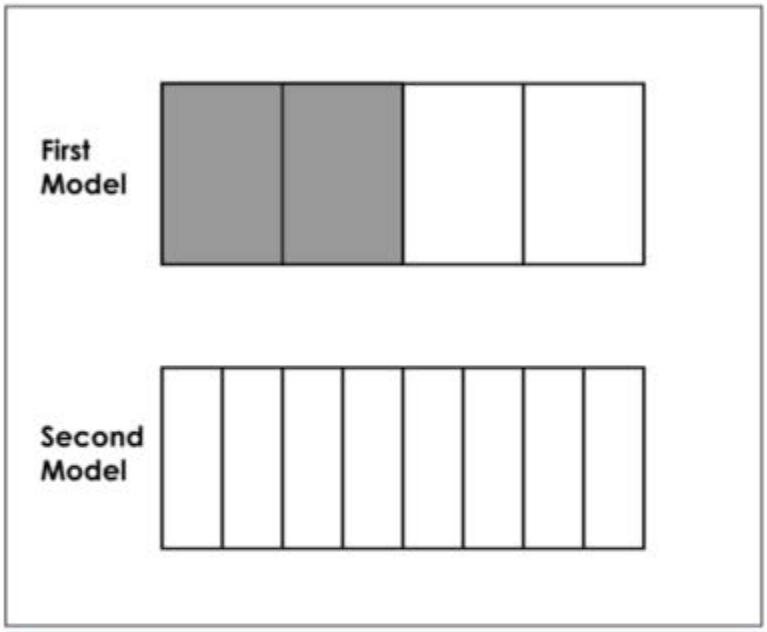
Question and Scoring Guidelines

Question 13

This item has two parts.

Vince wants to find a fraction that is equivalent to $\frac{2}{4}$. He creates the first model, as shown.

Part A. Select parts of the second model so that the two models represent equal fractions.



Part B. Based on the second model, what fraction is equivalent to $\frac{2}{4}$?

Points Possible: 2

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. *(3.NF.3)*

Scoring Guidelines

For two points, a student response satisfies the following bullets:

- The student created a correct fraction model, providing evidence of the knowledge that equivalent fractions cover an equivalent area of an equal-sized fraction model.
- The student identified the correct fraction, providing evidence of the ability to generate an equivalent fraction using fraction models.

Exemplar Response

A. Any four sections shaded
B. 4/8 or 1/2

For one point, a student response satisfies one of the bullets.

Exemplar Response

A. Any four sections shaded
B. 2/8 or 1/4

Grade 3
Math
Spring 2018 Item Release

Question 13

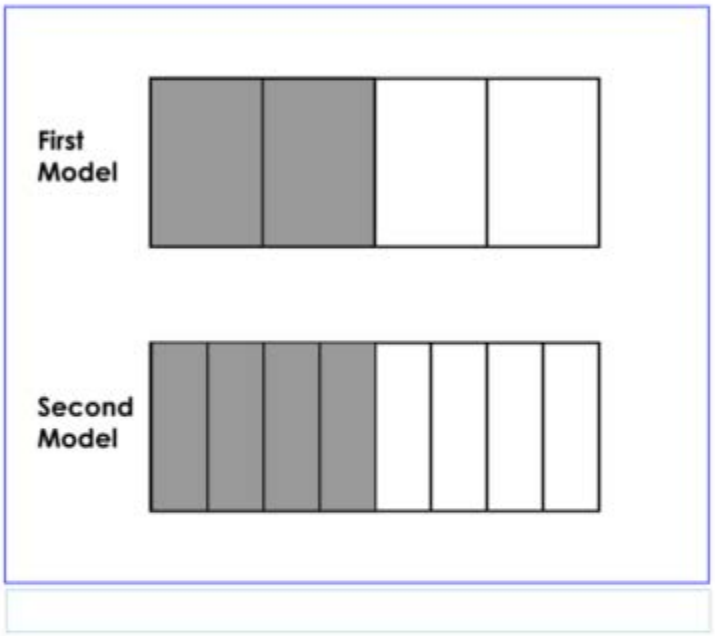
Sample Responses

Sample Response: 2 points

This item has two parts.

Vince wants to find a fraction that is equivalent to $\frac{2}{4}$. He creates the first model, as shown.

Part A. Select parts of the second model so that the two models represent equal fractions.



Part B. Based on the second model, what fraction is equivalent to $\frac{2}{4}$?

$\frac{4}{8}$

Notes on Scoring

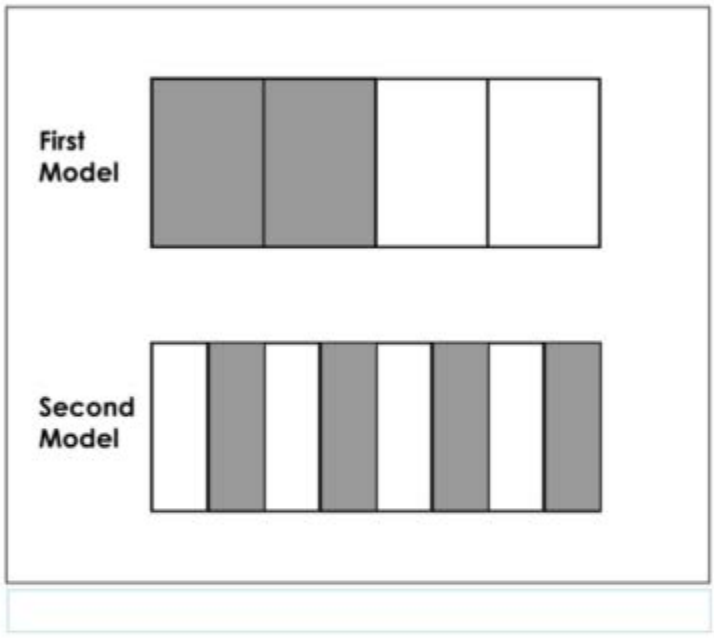
This response earns full credit (2 points) because it identifies the correct number of parts in the second model to represent equal fractions, and it identifies a fraction equivalent to $\frac{2}{4}$ based on the second model.

Sample Response: 2 points

This item has two parts.

Vince wants to find a fraction that is equivalent to $\frac{2}{4}$. He creates the first model, as shown.

Part A. Select parts of the second model so that the two models represent equal fractions.



Part B. Based on the second model, what fraction is equivalent to $\frac{2}{4}$?

$\frac{1}{2}$

Notes on Scoring

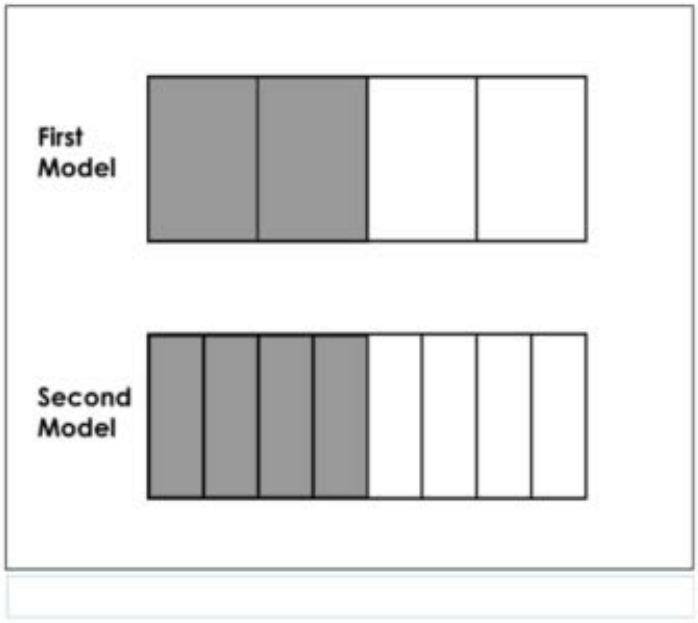
This response earns full credit (2 points) because it identifies the correct number of parts in the second model to represent equal fractions, and it identifies a fraction equivalent to $\frac{2}{4}$ based on the second model.

Sample Response: 1 point

This item has two parts.

Vince wants to find a fraction that is equivalent to $\frac{2}{4}$. He creates the first model, as shown.

Part A. Select parts of the second model so that the two models represent equal fractions.



Part B. Based on the second model, what fraction is equivalent to $\frac{2}{4}$?

$\frac{2}{4}$

1 2 3
4 5 6
7 8 9
0 . $\frac{a}{b}$

Notes on Scoring

This response earns partial credit (1 point) because it identifies the correct number of parts in the second model to represent equal fractions but it does not identify a fraction equivalent to $\frac{2}{4}$ based on the second model.

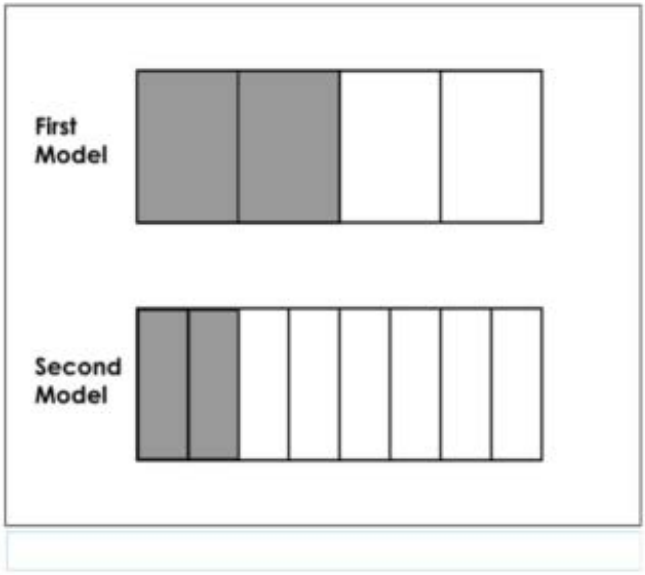
- In Part B, the student enters the same fraction shown in the first model.

Sample Response: 1 point

This item has two parts.

Vince wants to find a fraction that is equivalent to $\frac{2}{4}$. He creates the first model, as shown.

Part A. Select parts of the second model so that the two models represent equal fractions.



Part B. Based on the second model, what fraction is equivalent to $\frac{2}{4}$?

$\frac{4}{8}$

Notes on Scoring

This response earns partial credit (1 point) because it identifies a fraction equivalent to $\frac{2}{4}$, but does not identify the correct number of parts in the second model to represent equal fractions.

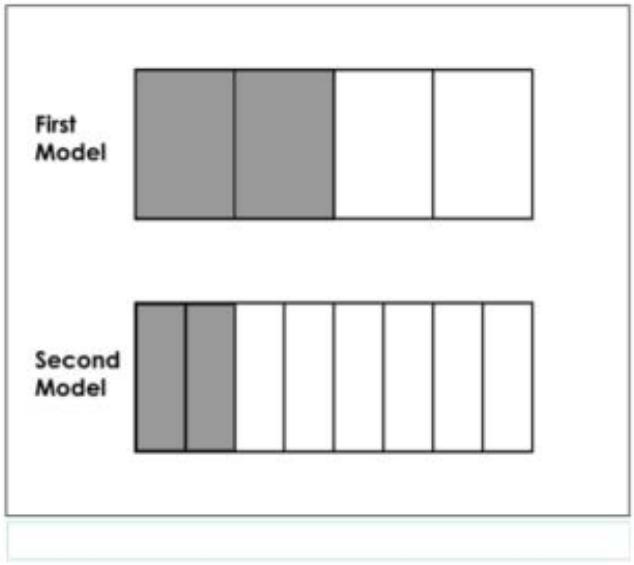
- In Part A, the student may think that because two rectangles are shaded in the first model, only two rectangles should be shaded in the second model.

Sample Response: 0 points

This item has two parts.

Vince wants to find a fraction that is equivalent to $\frac{2}{4}$. He creates the first model, as shown.

Part A. Select parts of the second model so that the two models represent equal fractions.



Part B. Based on the second model, what fraction is equivalent to $\frac{2}{4}$?

$\frac{2}{4}$

1 2 3
4 5 6
7 8 9
0 .

Notes on Scoring

This response earns no credit (0 points) because it does not identify the correct number of parts in the second model to represent equal fractions, and it does not identify a fraction equivalent to $\frac{2}{4}$.

- In Part A, the student may think that because two rectangles are shaded in the first model, only two rectangles should be shaded in the second model.

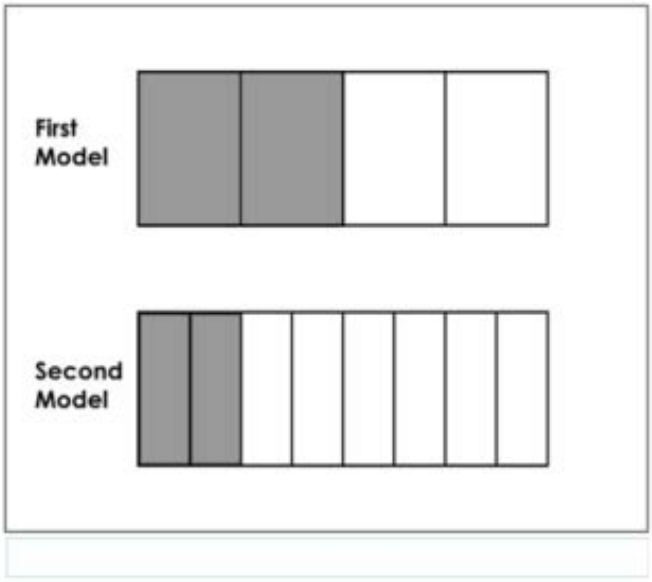
- In Part B, the student enters the same fraction shown in the first model.

Sample Response: 0 points

This item has two parts.

Vince wants to find a fraction that is equivalent to $\frac{2}{4}$. He creates the first model, as shown.

Part A. Select parts of the second model so that the two models represent equal fractions.



Part B. Based on the second model, what fraction is equivalent to $\frac{2}{4}$?

$\frac{2}{8}$

1 2 3
4 5 6
7 8 9
0 .

Notes on Scoring

This response earns no credit (0 points) because it does not identify the correct number of parts in the second model to represent equal fractions, and it does not identify a fraction equivalent to $\frac{2}{4}$.

- In Part A, the student may think that because two rectangles are shaded in the first model, only two rectangles should be shaded in the second model.
- In Part B, the student enters the fraction of rectangles based on the error in Part A instead of identifying a fraction equivalent to $\frac{2}{4}$.

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Math
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Question 16

Question and Scoring Guidelines

Question 16

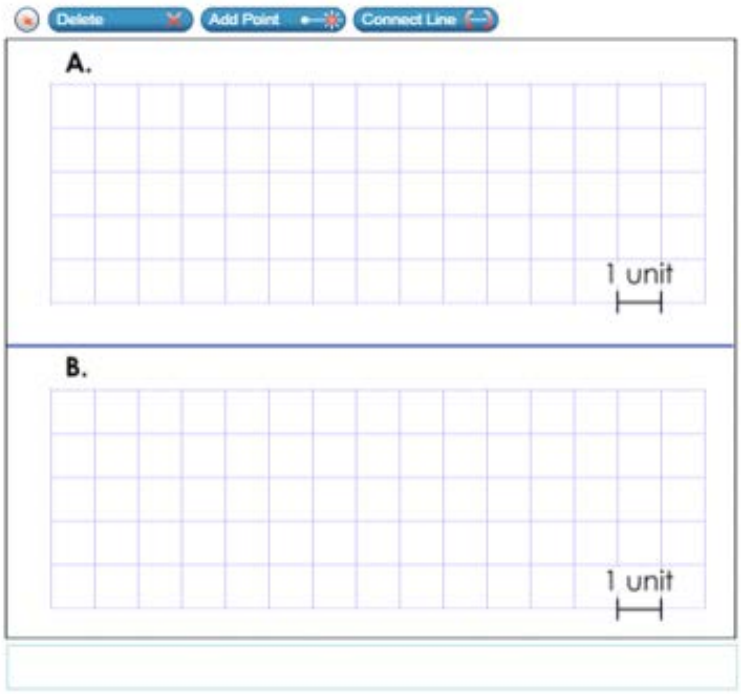
Carl creates a rectangle with an area of 12 square units and a perimeter of 14 units.

A. In the top box, use the Connect Line tool to create a rectangle with

- the same area as Carl's rectangle, but
- a different perimeter.

B. In the bottom box, use the Connect Line tool to create a rectangle with

- the same perimeter as Carl's rectangle, but
- a different area.



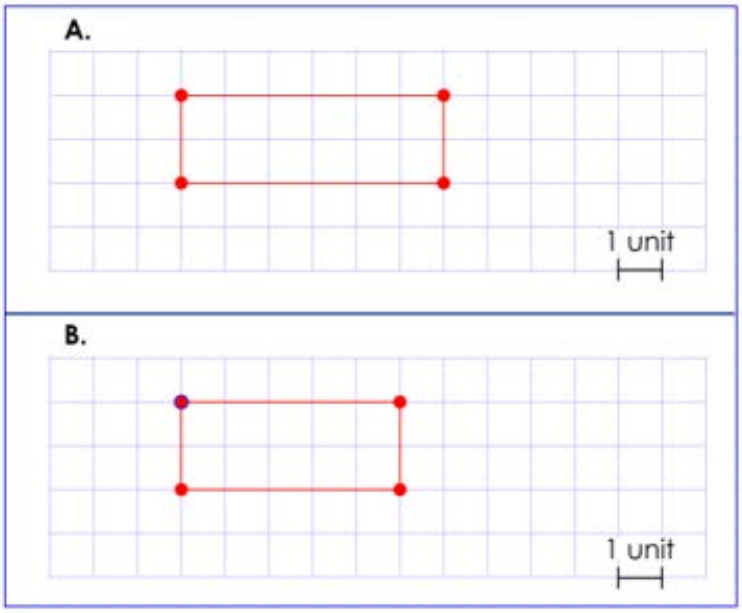
Points Possible: 2

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

Exemplar Response



Other Correct Responses

A. Any rectangle with an area of 12 square units that is not 3 units by 4 units
B. Any rectangle with a perimeter of 14 units that is not 3 units by 4 units

For this item, a full-credit response includes:

- A correct rectangle in Part A (1 point);
  AND
- A correct rectangle in Part B (1 point).

Grade 3
Math
Spring 2018 Item Release

Question 16

Sample Responses

Sample Response: 2 points

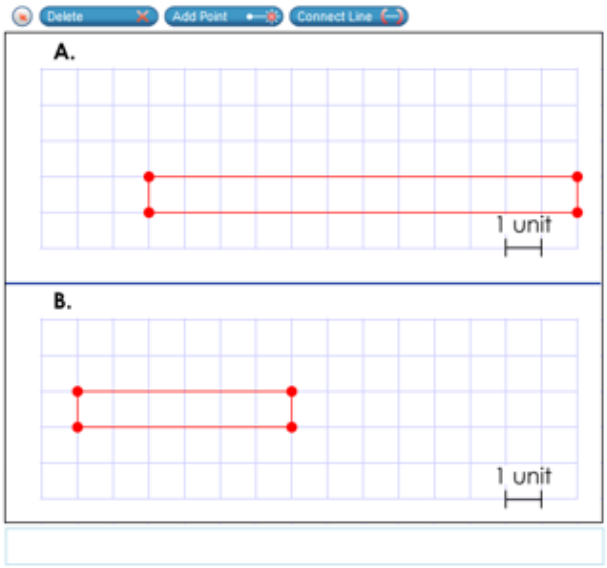
Carl creates a rectangle with an area of 12 square units and a perimeter of 14 units.

A. In the top box, use the Connect Line tool to create a rectangle with

- the same area as Carl's rectangle, but
- a different perimeter.

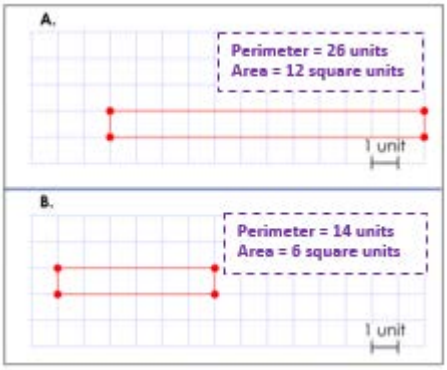
B. In the bottom box, use the Connect Line tool to create a rectangle with

- the same perimeter as Carl's rectangle, but
- a different area.



Notes on Scoring

This response earns full credit (2 points) because Part A correctly shows a rectangle with the same area and a different perimeter than Carl's rectangle, and Part B correctly shows a rectangle with the same perimeter and a different area than Carl's rectangle.



Sample Response: 2 points

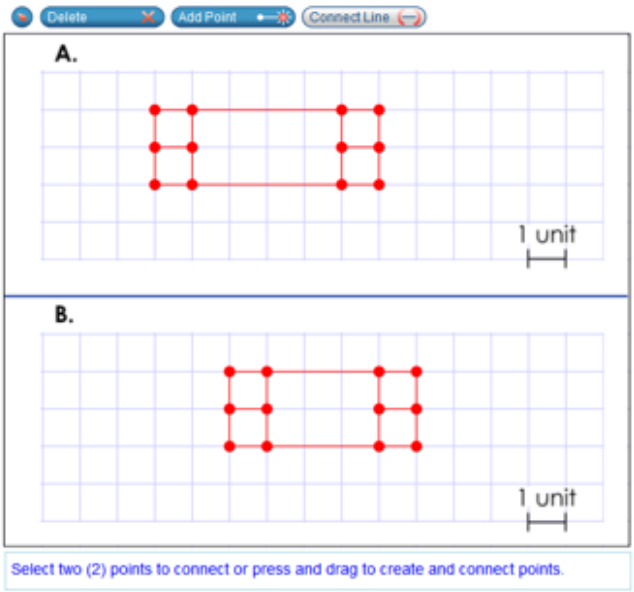
Carl creates a rectangle with an area of 12 square units and a perimeter of 14 units.

A. In the top box, use the Connect Line tool to create a rectangle with

- the same area as Carl's rectangle, but
- a different perimeter.

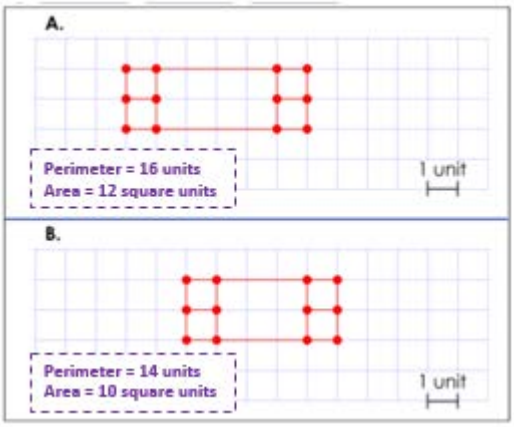
B. In the bottom box, use the Connect Line tool to create a rectangle with

- the same perimeter as Carl's rectangle, but
- a different area.



Notes on Scoring

This response earns full credit (2 points) because Part A correctly shows a rectangle with the same area and a different perimeter than Carl's rectangle, and Part B correctly shows a rectangle with the same perimeter and a different area than Carl's rectangle.



While square corners (right angles) are not required to be drawn as part of a response, students in grades 3–5 can still earn full credit if they include square corners as part of a correct response.

Sample Response: 1 point

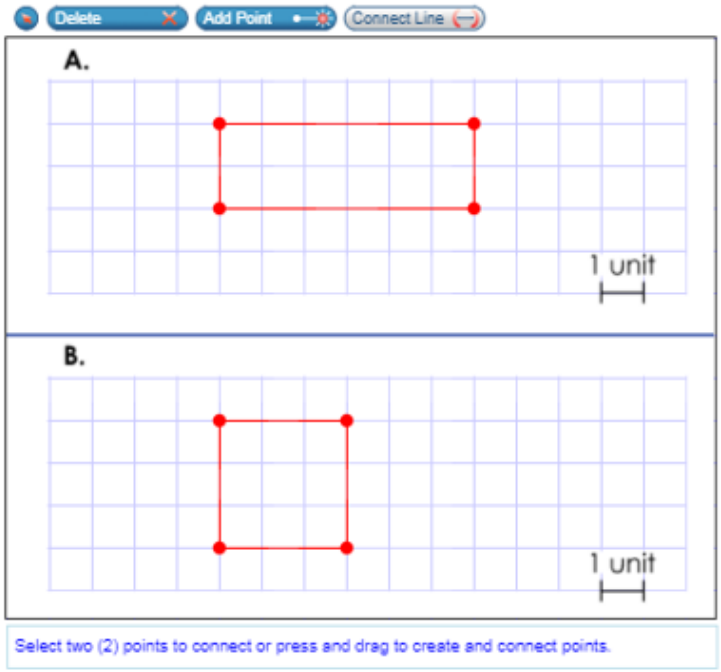
Carl creates a rectangle with an area of 12 square units and a perimeter of 14 units.

A. In the top box, use the Connect Line tool to create a rectangle with

- the same area as Carl's rectangle, but
- a different perimeter.

B. In the bottom box, use the Connect Line tool to create a rectangle with

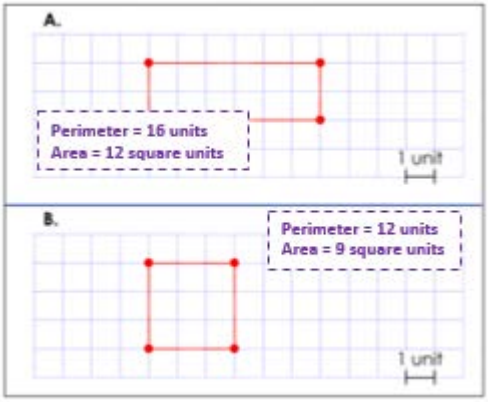
- the same perimeter as Carl's rectangle, but
- a different area.



Notes on Scoring

This response earns partial credit (1 point) because Part A correctly shows a rectangle with the same area and a different perimeter than Carl's rectangle, but Part B shows a rectangle with a different perimeter instead of the same perimeter as Carl's rectangle.

- The student may think that the rectangle in Part B needs to have a perimeter of 12 units, confusing the area of Carl's rectangle for its perimeter.



Sample Response: 1 point

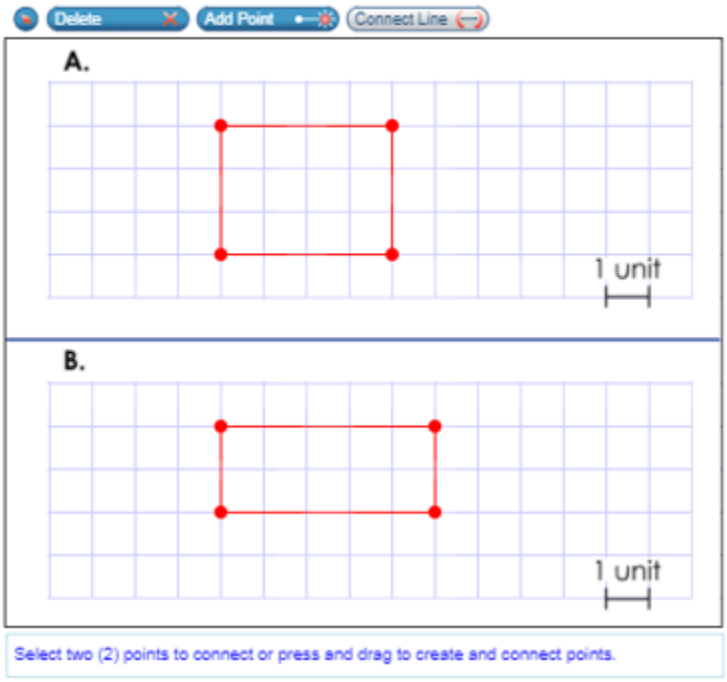
Carl creates a rectangle with an area of 12 square units and a perimeter of 14 units.

A. In the top box, use the Connect Line tool to create a rectangle with

- the same area as Carl's rectangle, but
- a different perimeter.

B. In the bottom box, use the Connect Line tool to create a rectangle with

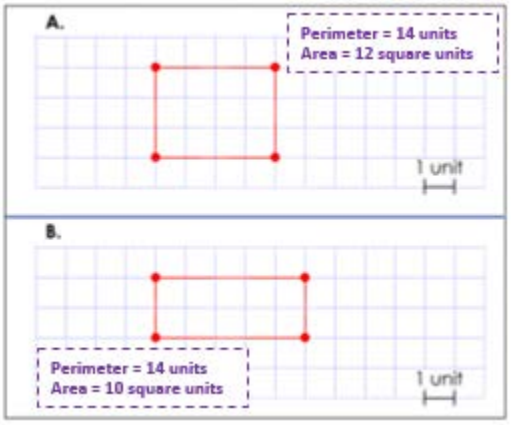
- the same perimeter as Carl's rectangle, but
- a different area.



Notes on Scoring

This response earns partial credit (1 point) because Part A shows a rectangle with the same perimeter instead of a different perimeter than Carl's rectangle, but Part B correctly shows a rectangle with the same perimeter and a different area than Carl's rectangle.

- In Part A, the student may not recognize the perimeter of their rectangle is the same as the perimeter of Carl's rectangle.



Sample Response: 0 points

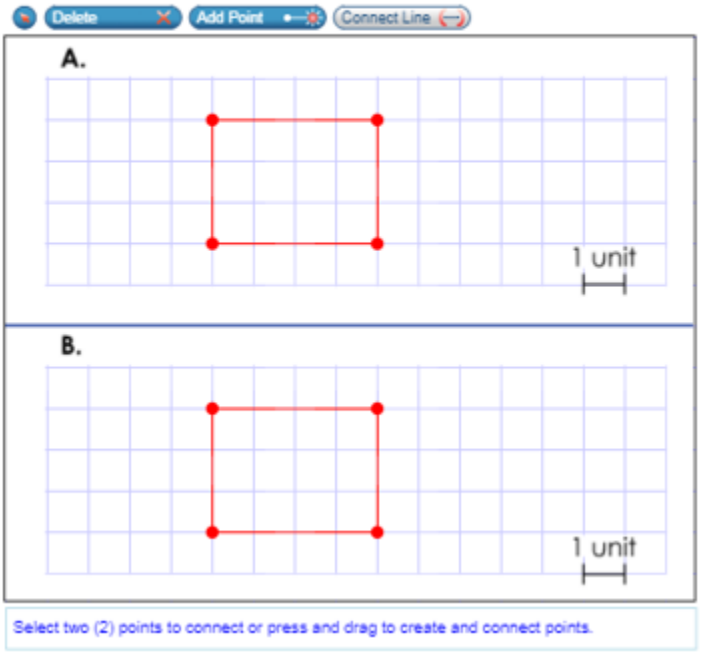
Carl creates a rectangle with an area of 12 square units and a perimeter of 14 units.

A. In the top box, use the Connect Line tool to create a rectangle with

- the same area as Carl's rectangle, but
- a different perimeter.

B. In the bottom box, use the Connect Line tool to create a rectangle with

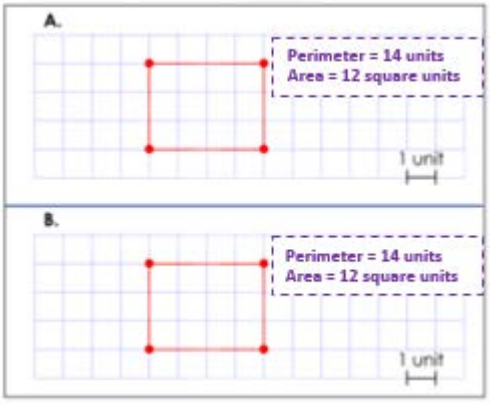
- the same perimeter as Carl's rectangle, but
- a different area.



Notes on Scoring

This response earns no credit (0 points) because both Part A and Part B show rectangles with the same area and perimeter as Carl's rectangle instead of meeting the given criteria.

- The student may think both rectangles need to have the same area and perimeter as Carl's rectangle.



Sample Response: 0 points

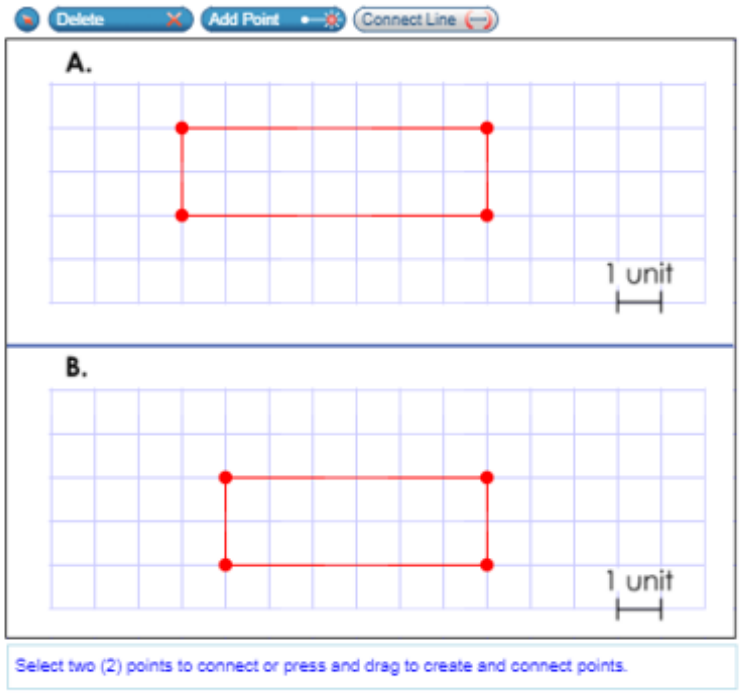
Carl creates a rectangle with an area of 12 square units and a perimeter of 14 units.

A. In the top box, use the Connect Line tool to create a rectangle with

- the same area as Carl's rectangle, but
- a different perimeter.

B. In the bottom box, use the Connect Line tool to create a rectangle with

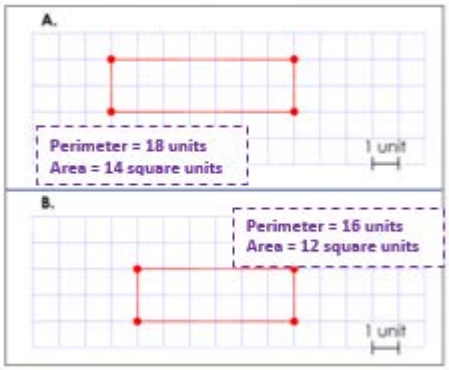
- the same perimeter as Carl's rectangle, but
- a different area.



Notes on Scoring

This response earns no credit (0 points) because Part A shows a rectangle with a different area instead of the same area as Carl's rectangle, and Part B shows a rectangle with a different perimeter and the same area as Carl's rectangle instead of the reverse.

- The student may interchange the concepts of area and perimeter when drawing their rectangles.



Grade 3
Math
Spring 2018 Item Release

Question 19

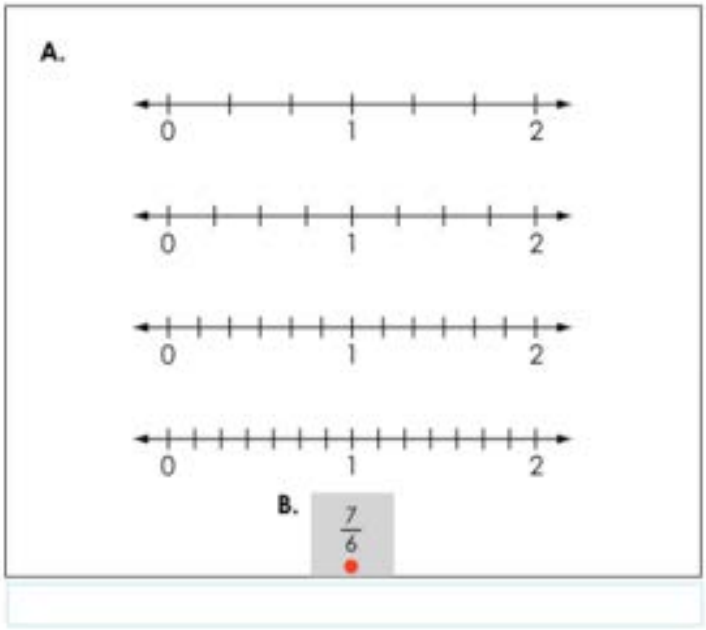
Question and Scoring Guidelines

Question 19

Several number lines are shown.

A. Select the number line that can best be used to plot $\frac{7}{6}$.

B. Move the fraction to the number line you selected to correctly plot $\frac{7}{6}$.



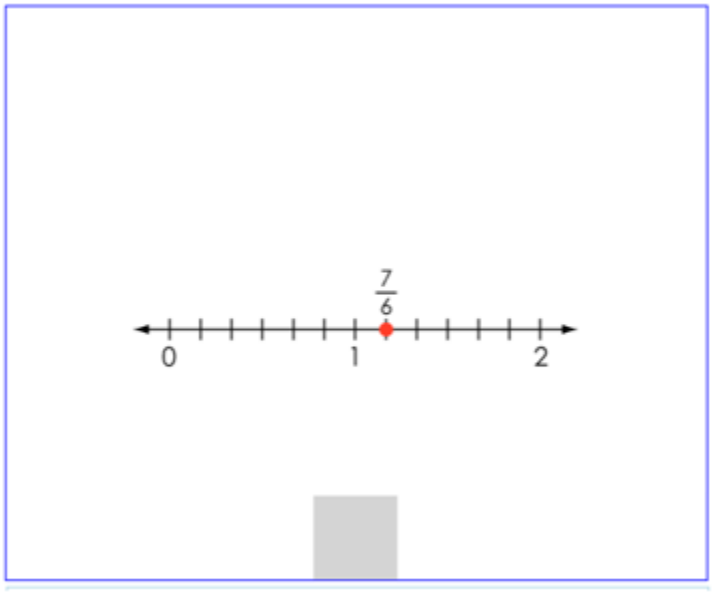
Points Possible: 2

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. *(3.NF.2) b.* Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.

Scoring Guidelines

Exemplar Response



Other Correct Responses

- N/A

For this item, a full-credit response includes:

- A correct line (1 point);
  AND
- A correctly plotted fraction (1 point).

Grade 3
Math
Spring 2018 Item Release

Question 19

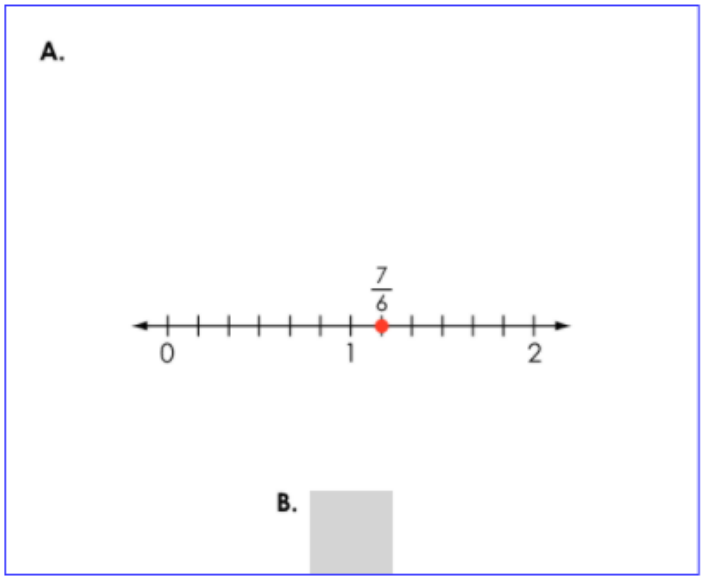
Sample Responses

Sample Response: 2 points

Several number lines are shown.

A. Select the number line that can best be used to plot $\frac{7}{6}$.

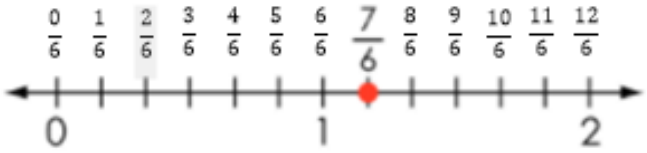
B. Move the fraction to the number line you selected to correctly plot $\frac{7}{6}$.



Notes on Scoring

This response earns full credit (2 points) because it identifies the correct number line and identifies the correct location of $\frac{7}{6}$ on the number line.

- The student may count the markings on the number lines to determine which number line is marked in $\frac{1}{6}$s before placing $\frac{7}{6}$ on the line plot.



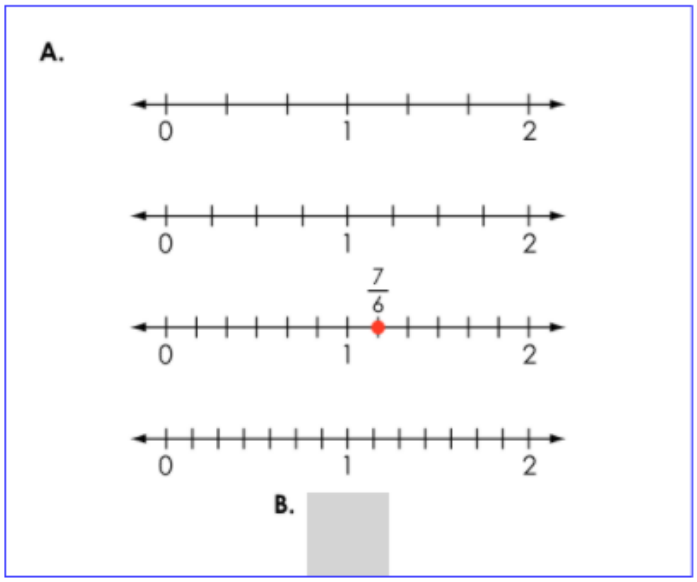
The directions in Part A ask the student to "Select a number line". During online testing, when the student "identifies" a number line, the other three number lines on the screen will disappear, leaving only the selected number line visible.

Sample Response: 2 points

Several number lines are shown.

A. Select the number line that can best be used to plot $\frac{7}{6}$.

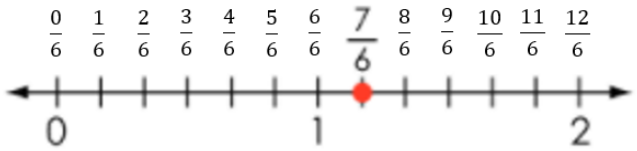
B. Move the fraction to the number line you selected to correctly plot $\frac{7}{6}$.



Notes on Scoring

This response earns full credit (2 points) because it identifies the correct number line and identifies the correct location of $\frac{7}{6}$ on the number line.

- The student may count the markings on the number lines to determine which number line is marked in $\frac{1}{6}$s before placing $\frac{7}{6}$ on the line plot.



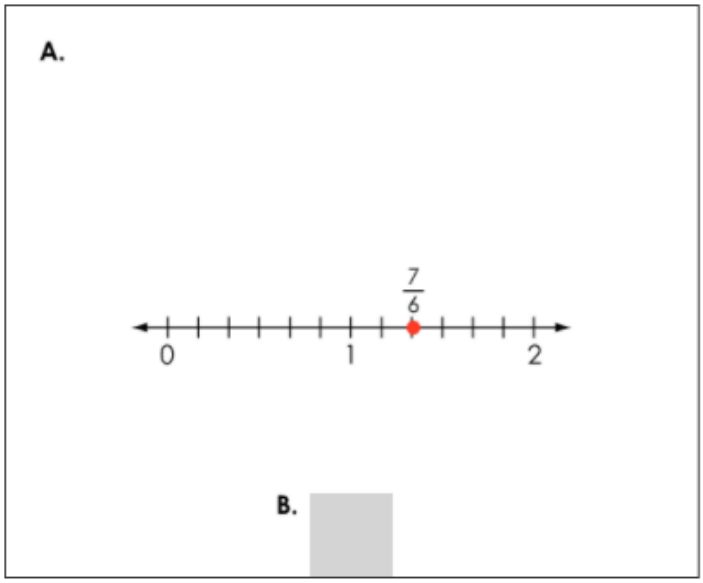
The directions in Part A ask the student to "Select a number line". During online testing, when the student "identifies" a number line, the other three number lines on the screen will disappear, leaving only the selected number line visible. In this response, placing the point at the correct location on the correct number line is counted as "selecting" a number line.

Sample Response: 1 point

Several number lines are shown.

A. Select the number line that can best be used to plot $\frac{7}{6}$.

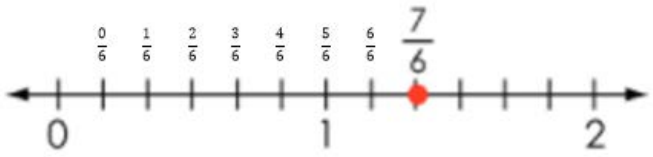
B. Move the fraction to the number line you selected to correctly plot $\frac{7}{6}$.



Notes on Scoring

This response earns partial credit (1 point) because it identifies the correct number line, but identifies the incorrect location of $\frac{7}{6}$ on the number line.

- The student may incorrectly count the unit lengths marked on the number line.

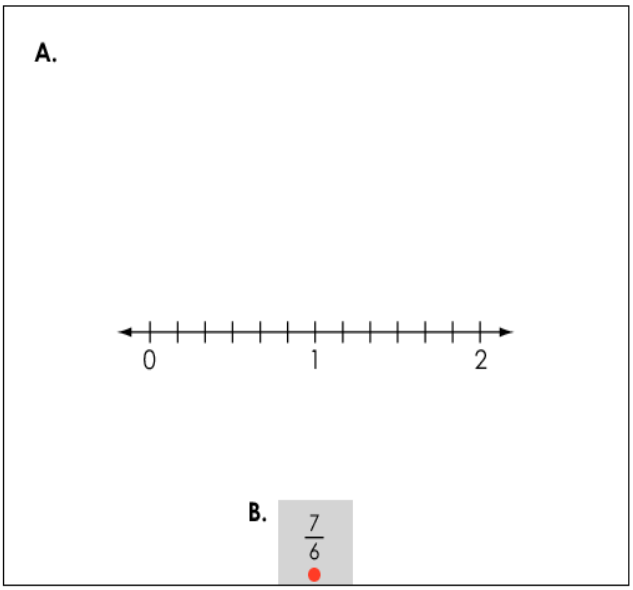


Sample Response: 1 point

Several number lines are shown.

A. Select the number line that can best be used to plot $\frac{7}{6}$.

B. Move the fraction to the number line you selected to correctly plot $\frac{7}{6}$.



Notes on Scoring

This response earns partial credit (1 point) because it identifies the correct number line but does not identify the location of $\frac{7}{6}$ on the number line.

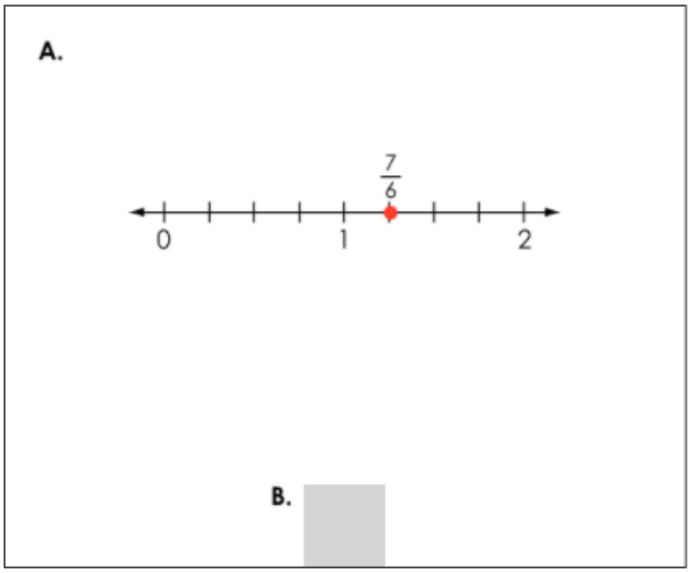
- The student may select the correct number line; however, the student does not place $\frac{7}{6}$ in the correct spot on the line plot.

Sample Response: 0 points

Several number lines are shown.

A. Select the number line that can best be used to plot $\frac{7}{6}$.

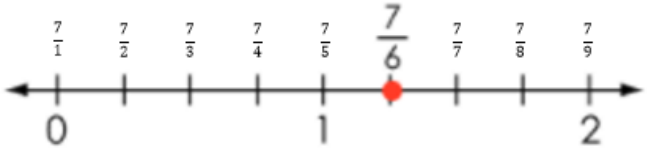
B. Move the fraction to the number line you selected to correctly plot $\frac{7}{6}$.



Notes on Scoring

This response earns no credit (0 points) because it identifies the incorrect number line and the incorrect location of $\frac{7}{6}$.

- The student may increase the denominators in each of their fractions as they count the markings on the number line and place $\frac{7}{6}$ based on this error.

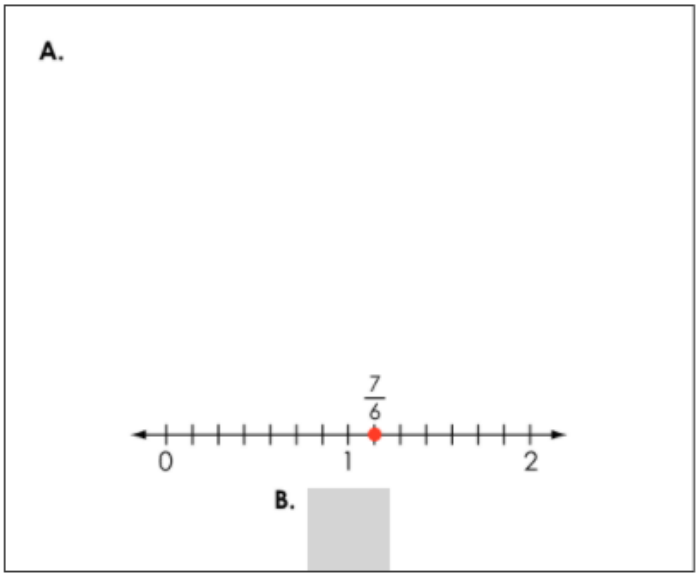


Sample Response: 0 points

Several number lines are shown.

A. Select the number line that can best be used to plot $\frac{7}{6}$.

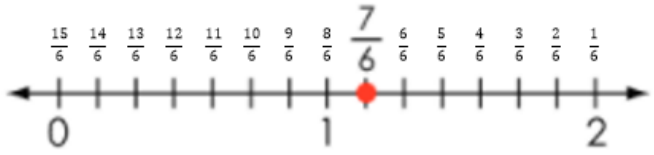
B. Move the fraction to the number line you selected to correctly plot $\frac{7}{6}$.



Notes on Scoring

This response earns no credit (0 points) because it identifies the incorrect number line and the incorrect location of $\frac{7}{6}$ on the number line.

- The student may incorrectly count the markings on the number line and place $\frac{7}{6}$ based on this error.



Grade 3
Math
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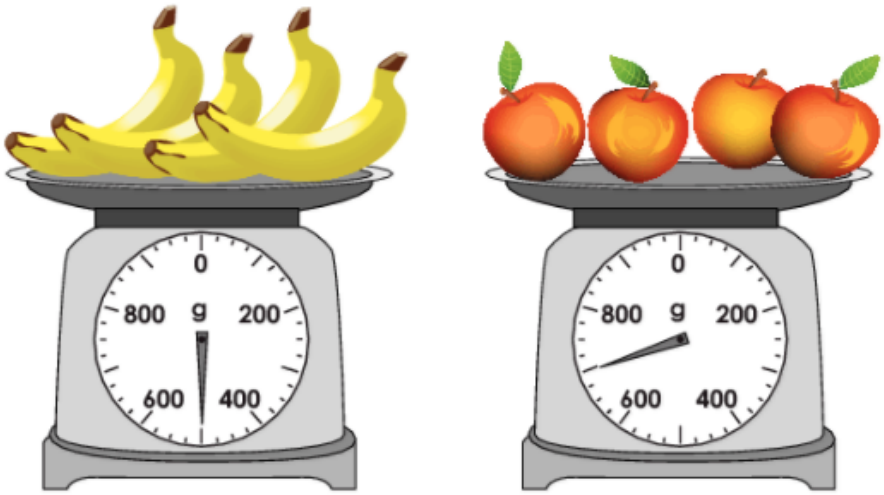
Question 21

Question and Scoring Guidelines

Question 21

A student is comparing the mass of four bananas to the mass of four apples.



Bananas **Apples**

What is the difference in mass, in grams (g), between the bananas and the apples?

Ⓐ 200 g

Ⓑ 500 g

Ⓒ 700 g

Ⓓ 1,200 g

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 (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide 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

Rationale for Option A: **Key** – The student correctly finds the difference between the mass of the bananas and the mass of the apples.

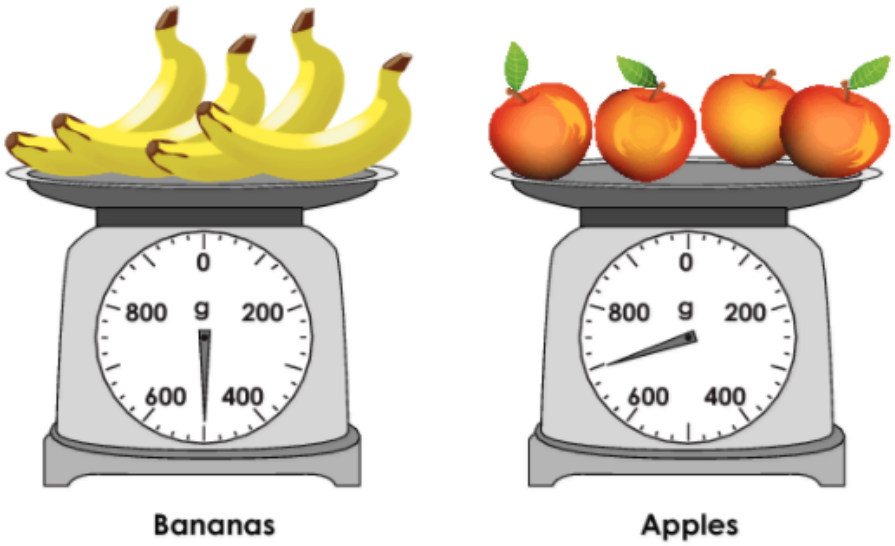
Rationale for Option B: This is incorrect. The student may identify the mass of the bananas.

Rationale for Option C: This is incorrect. The student may identify the mass of the apples.

Rationale for Option D: This is incorrect. The student may find the sum of the mass of the bananas and the mass of the apples.

Sample Response: 1 point

A student is comparing the mass of four bananas to the mass of four apples.



What is the difference in mass, in grams (g), between the bananas and the apples?

- ● 200 g
- Ⓑ 500 g
- Ⓒ 700 g
- Ⓓ 1,200 g

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Math
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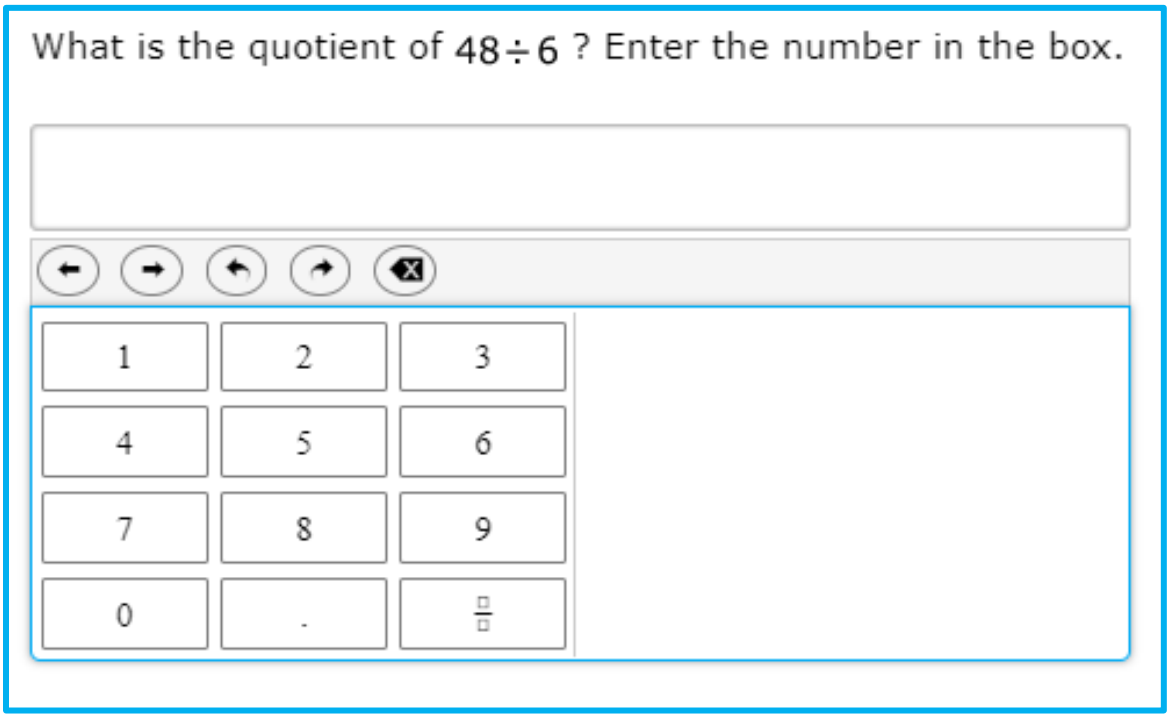
Question 22

Question and Scoring Guidelines

Question 22



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 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(3.OA.7)*

Scoring Guidelines

Exemplar Response

- 8

Other Correct Responses

- Any equivalent decimal value

For this item, a full-credit response includes:

- The correct value (1 point).

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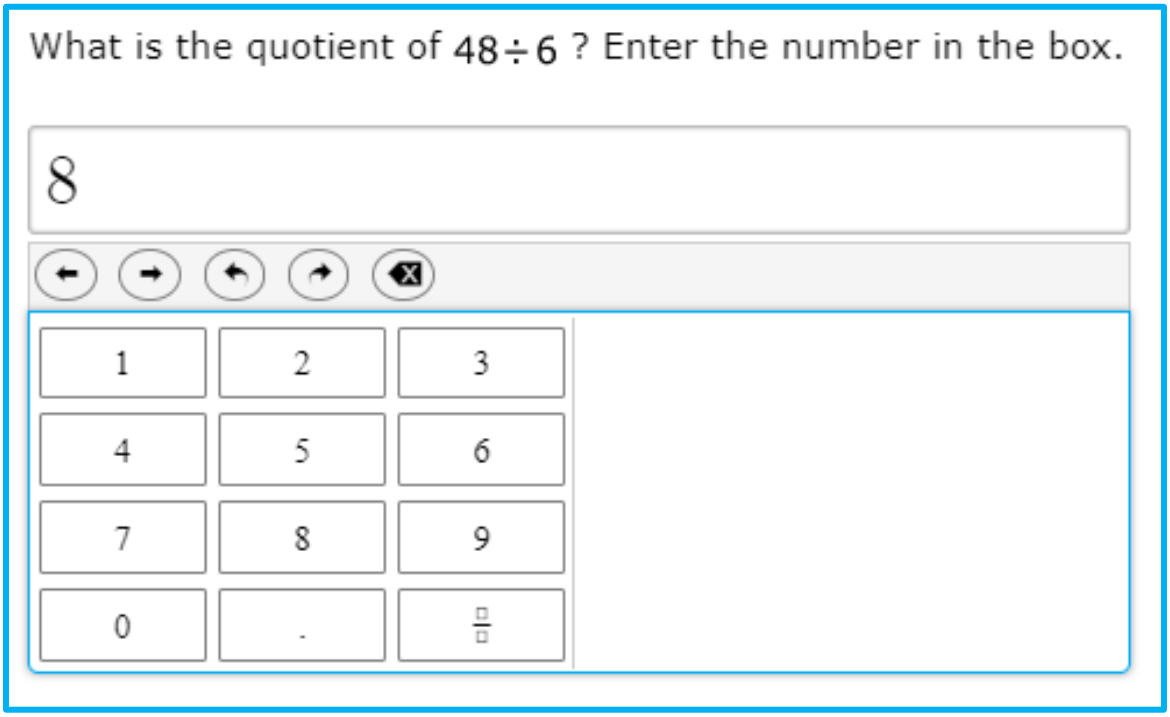
Question 22

Sample Responses

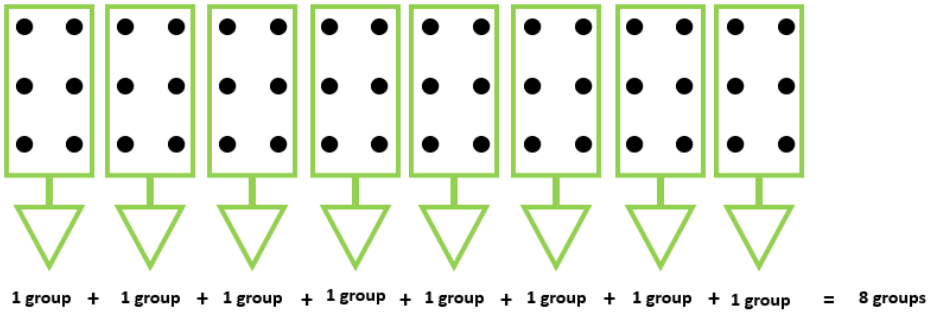
Sample Response: 1 point



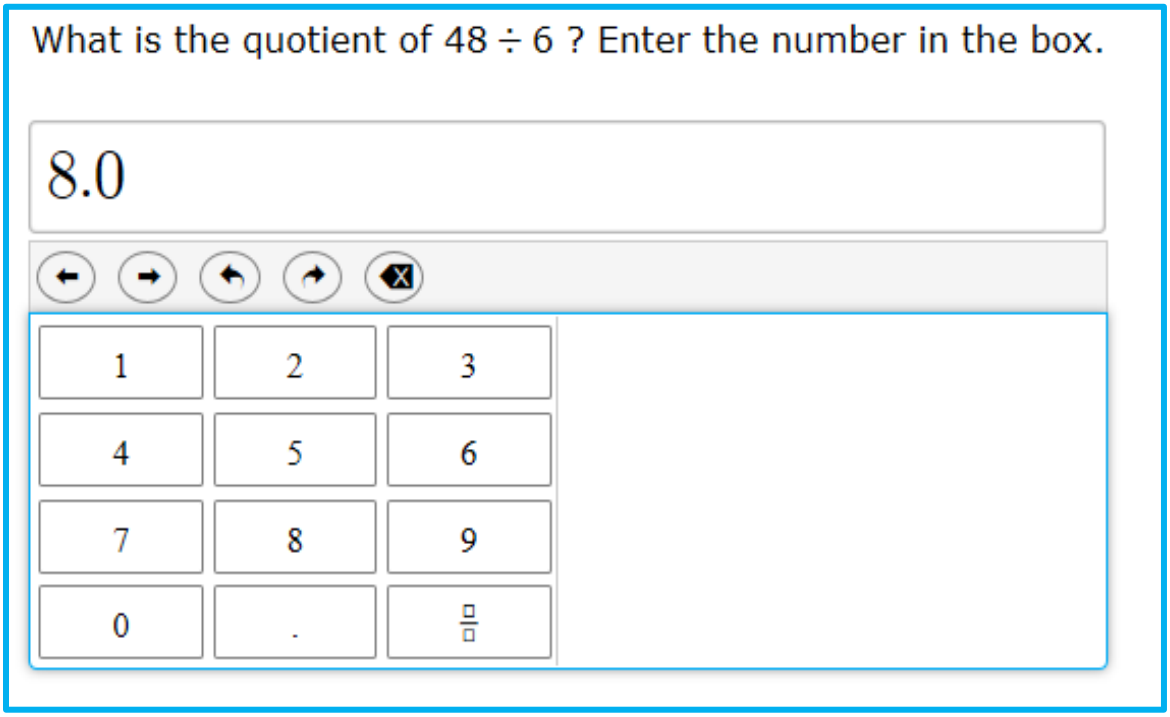
Notes on Scoring

This response earns full credit (1 point) because it identifies the correct quotient of 48 ÷ 6.

- The student may use an array to identify how many groups of 6 there are in 48.



Sample Response: 1 point



Notes on Scoring

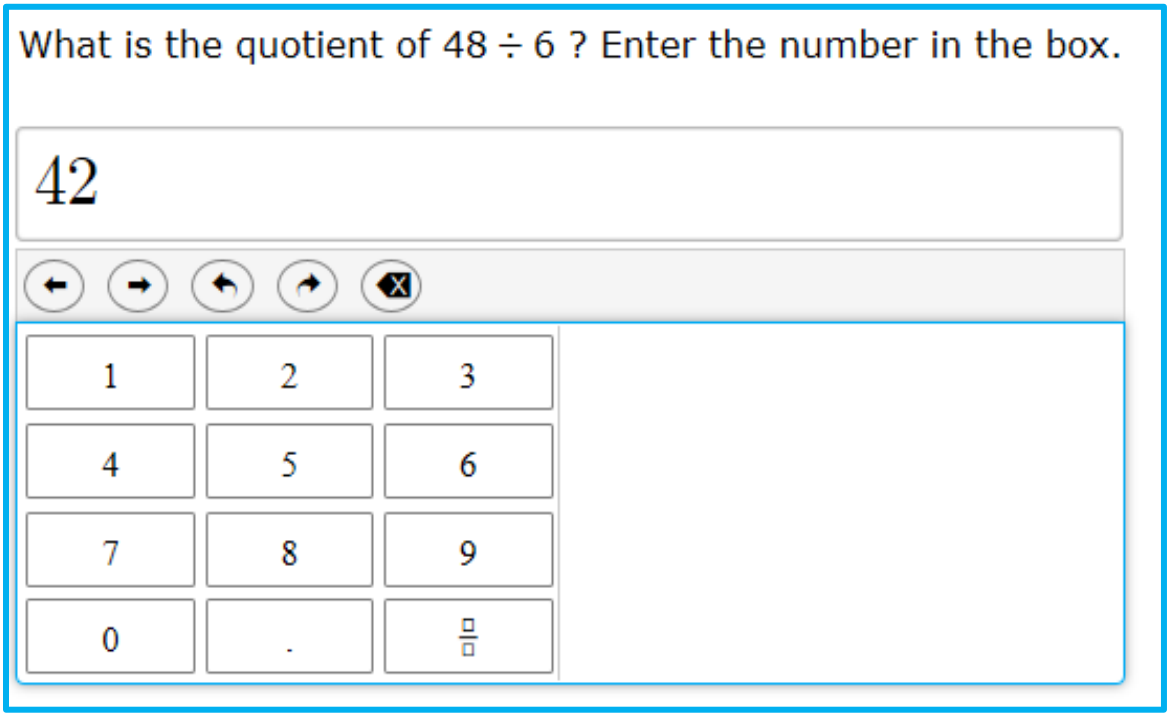
This response earns full credit (1 point) because it identifies the correct quotient of 48 ÷ 6.

- The student may create a table using the relationship between multiplication and division and identify an equivalent value to 8.

1 × 6.0 = 6.0		6 ÷ 6.0 = 1.0
2 × 6.0 = 12.0		12 ÷ 6.0 = 2.0
3 × 6.0 = 18.0		18 ÷ 6.0 = 3.0
4 × 6.0 = 24.0	AND	24 ÷ 6.0 = 4.0
5 × 6.0 = 30.0		30 ÷ 6.0 = 5.0
6 × 6.0 = 36.0		36 ÷ 6.0 = 6.0
7 × 6.0 = 42.0		42 ÷ 6.0 = 7.0
8 × 6.0 = 48.0		48 ÷ 6.0 = 8.0

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

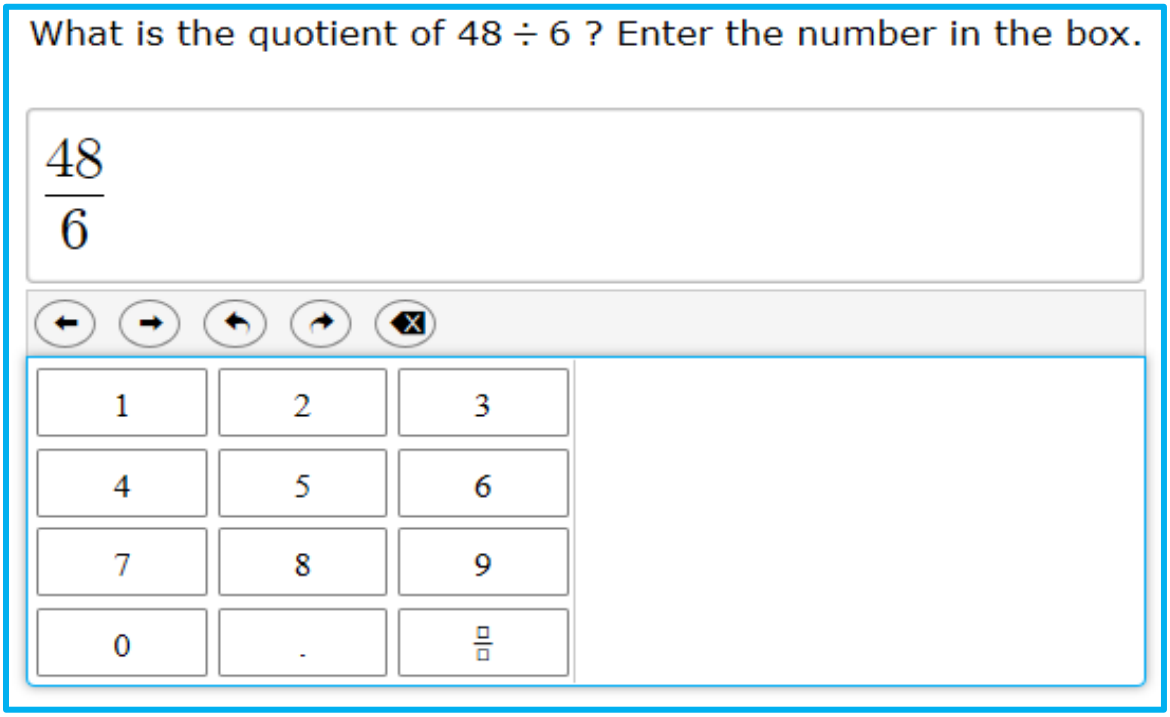


Notes on Scoring

This response earns no credit (0 points) because it identifies the incorrect quotient of 48 ÷ 6.

- The student may subtract 6 from 48 instead of dividing 48 by 6.
  48 – 6 = 42
  48 ÷ 6 ≠ 42

Sample Response: 0 points



Notes on Scoring

This response earns no credit (0 points) because it does not identify the quotient of 48 ÷ 6.

- The student may rewrite the division expression as a fraction but does not solve for the quotient.
  $\frac{48}{6}$ = ?
  48 ÷ 6 = 8

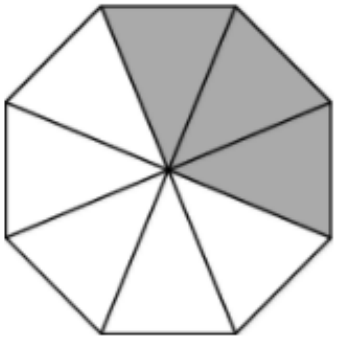
Grade 3
Math
Spring 2018 Item Release

Question 24

Question and Scoring Guidelines

Question 24

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).

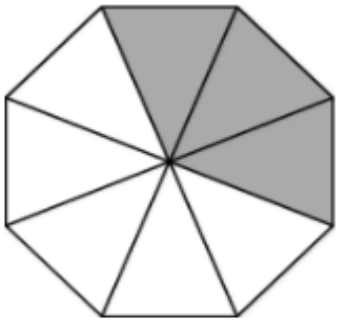
Grade 3
Math
Spring 2018 Item Release

Question 24

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.

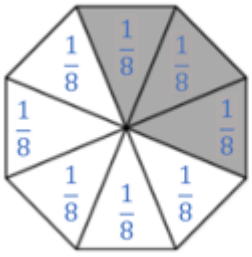
$\frac{3}{8}$

1	2	3
4	5	6
7	8	9
0	.	$\frac{\square}{\square}$

Notes on Scoring

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

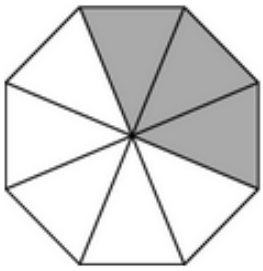
- The student may count all the triangles to identify a total of 8 equal parts and then count the shaded triangles.



$\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=\frac{3}{8}$

Sample Response: 1 point

A shape is divided into equal parts as shown.



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

$\frac{6}{16}$

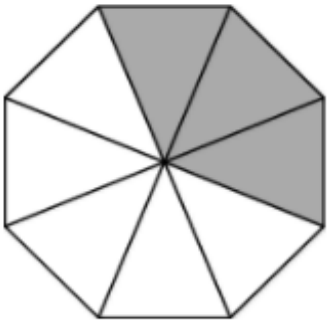
Notes on Scoring

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

- The student may count all the triangles to identify a total of 8 equal parts and then count 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.

$\frac{4}{8}$

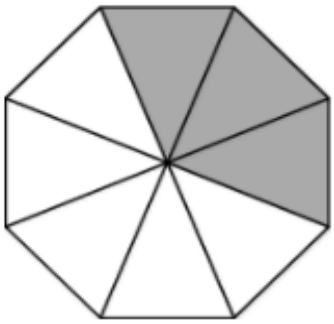
Notes on Scoring

This response earns no credit (0 points) because it identifies a fraction that does not represent the shaded area of the shape.

- The student may count all the triangles to identify a total of 8 equal parts and then miscount the shaded triangles.

Sample Response: 0 points

A shape is divided into equal parts as shown.



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

$\frac{8}{3}$

1	2	3
4	5	6
7	8	9
0	.	$\frac{\square}{\square}$

Notes on Scoring

This response earns no credit (0 points) because it identifies a fraction that does not represent the shaded area of the shape.

- The student may count all the triangles to identify a total of 8 equal parts and then count the shaded triangles, but incorrectly write the fraction.

Grade 3
Math
Spring 2018 Item Release

Question 25

Question and Scoring Guidelines

Question 25

Which expression is equivalent to 3×7?

Ⓐ $3+(3\times 4)$

Ⓑ $3\times(3\times 4)$

Ⓒ $(3\times 3)+(3\times 4)$

Ⓓ $(3\times 3)+(4\times 4)$

Points Possible: 1

Content Cluster: Understand properties of multiplication and the relationship between multiplication and division.

Content Standard: Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property) (3.OA.5)*

Scoring Guidelines

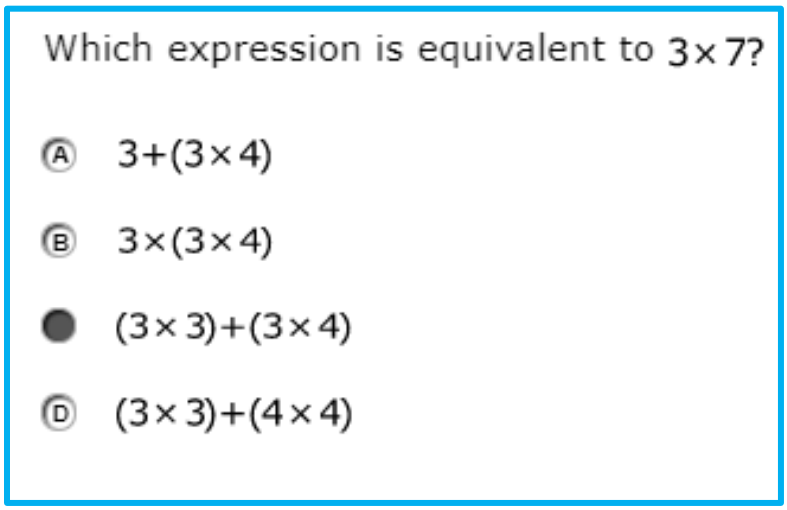
Rationale for Option A: This is incorrect. The student may incorrectly apply the Distributive Property by confusing the operations of addition and multiplication.

Rationale for Option B: This is incorrect. The student may incorrectly apply the Distributive Property by missing that 3 x 4 = 12 not 7.

Rationale for Option C: **Key** – The student correctly applies the Distributive Property by decomposing 7 and multiplying each addend by 3.

Rationale for Option D: This is incorrect. The student may incorrectly apply the Distributive Property by multiplying the addends of 7 by themselves instead of distributing the 3.

Sample Response: 1 point



Grade 3
Math
Spring 2018 Item Release

Question 29

Question and Scoring Guidelines

Question 29

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.

	Number of Classes	Number of Students in Each Class	Total Number of Students in Each Grade
Kindergarten	6	30	
First Grade	2	20	
Second Grade	4	20	
Third Grade	3	30	

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

	Number of Classes	Number of Students in Each Class	Total Number of Students in Each Grade
Kindergarten	6	30	180
First Grade	2	20	40
Second Grade	4	20	80
Third Grade	3	30	90

Other Correct Responses

- Any equivalent values

For this item, a full-credit response includes:

- Four correct values (1 point).

Grade 3
Math
Spring 2018 Item Release

Question 29

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.

	Number of Classes	Number of Students in Each Class	Total Number of Students in Each Grade
Kindergarten	6	30	180
First Grade	2	20	40
Second Grade	4	20	80
Third Grade	3	30	90

Notes on Scoring

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

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

	Number of Classes	Number of Students in Each Class	Number of Classes × Number of Students in Each Class	Total Number of Students in Each Grade
Kindergarten	6	30	6 × 30 =	180
First Grade	2	20	2 × 20 =	40
Second Grade	4	20	4 × 20 =	80
Third Grade	3	30	3 × 30 =	90

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.

	Number of Classes	Number of Students in Each Class	Total Number of Students in Each Grade
Kindergarten	6	30	180.0
First Grade	2	20	40.0
Second Grade	4	20	80.0
Third Grade	3	30	90.0

Notes on Scoring

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

- The student may multiply 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.

	Number of Classes	Number of Students in Each Class	Number of Classes × Number of Students in Each Class	Total Number of Students in Each Grade
Kindergarten	6	30	6 × 30.0 =	180.0
First Grade	2	20	2 × 20.0 =	40.0
Second Grade	4	20	4 × 20.0 =	80.0
Third Grade	3	30	3 × 30.0 =	90.0

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.

	Number of Classes	Number of Students in Each Class	Total Number of Students in Each Grade
Kindergarten	6	30	36
First Grade	2	20	22
Second Grade	4	20	24
Third Grade	3	30	33

Notes on Scoring

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

- The student may add 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.

	Number of Classes	Number of Students in Each Class	Number of Classes + Number of Students in Each Class	Total Number of Students in Each Grade	
Kindergarten	6	30	6 + 30 =	36	$6 \times 30 \neq 36$
First Grade	2	20	2 + 20 =	22	$2 \times 20 \neq 22$
Second Grade	4	20	4 + 20 =	24	$4 \times 20 \neq 24$
Third Grade	3	30	3 + 30 =	33	$3 \times 30 \neq 33$

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.

	Number of Classes	Number of Students in Each Class	Total Number of Students in Each Grade
Kindergarten	6	30	5
First Grade	2	20	10
Second Grade	4	20	5
Third Grade	3	30	10

Notes on Scoring

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

- The student may divide 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.

	Number of Classes	Number of Students in Each Class	Number of Students in Each Class ÷ Number of Classes	Total Number of Students in Each Grade	
Kindergarten	6	30	30 ÷ 6 =	5	$6 \times 30 \neq 5$
First Grade	2	20	20 ÷ 2 =	10	$2 \times 20 \neq 10$
Second Grade	4	20	20 ÷ 4 =	5	$4 \times 20 \neq 5$
Third Grade	3	30	30 ÷ 3 =	10	$3 \times 30 \neq 10$

Grade 3
Math
Spring 2018 Item Release

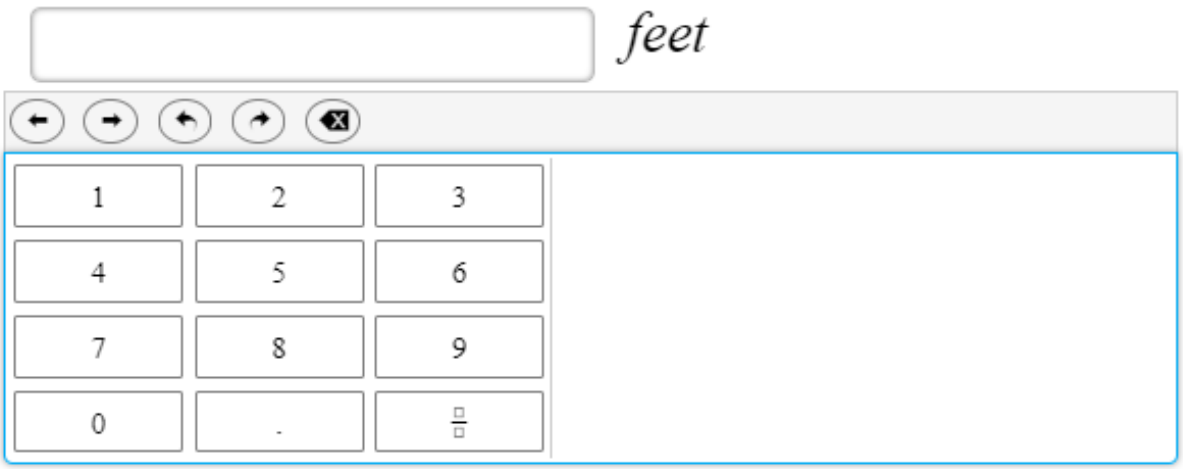
Question 32

Question and Scoring Guidelines

Question 32

A rectangle has a width of 6 feet and an area of 48 square feet.

What is the length, in feet, of the rectangle? 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. *(3.MD.7)*
b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

Scoring Guidelines

Exemplar Response

- 8 feet

Other Correct Responses

- Any equivalent value

For this item, a full-credit response includes:

- The correct value (1 point).

Grade 3
Math
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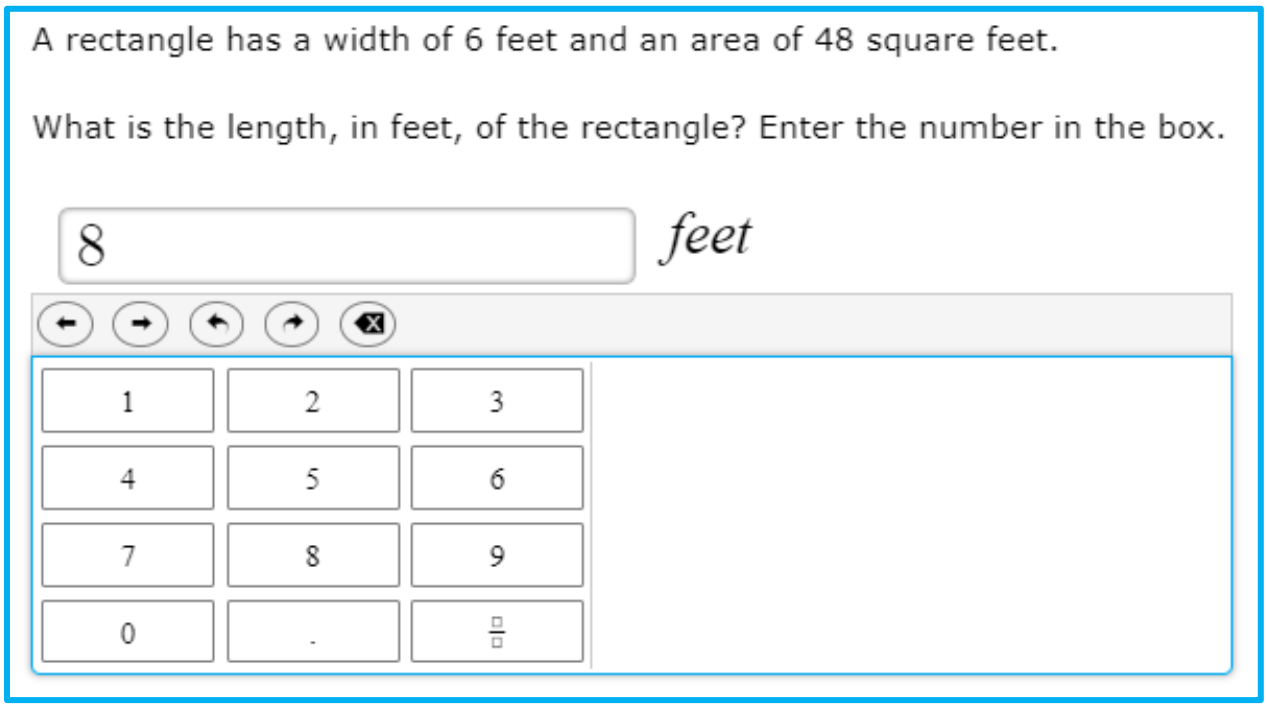
Question 32

Sample Responses

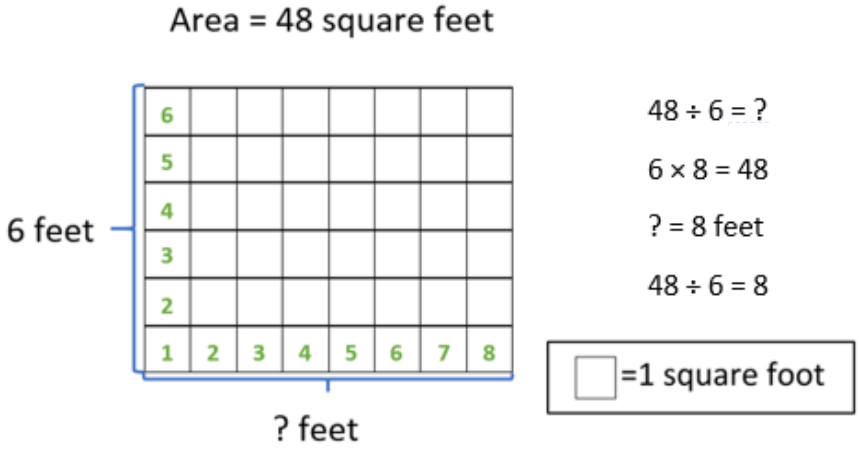
Sample Response: 1 point



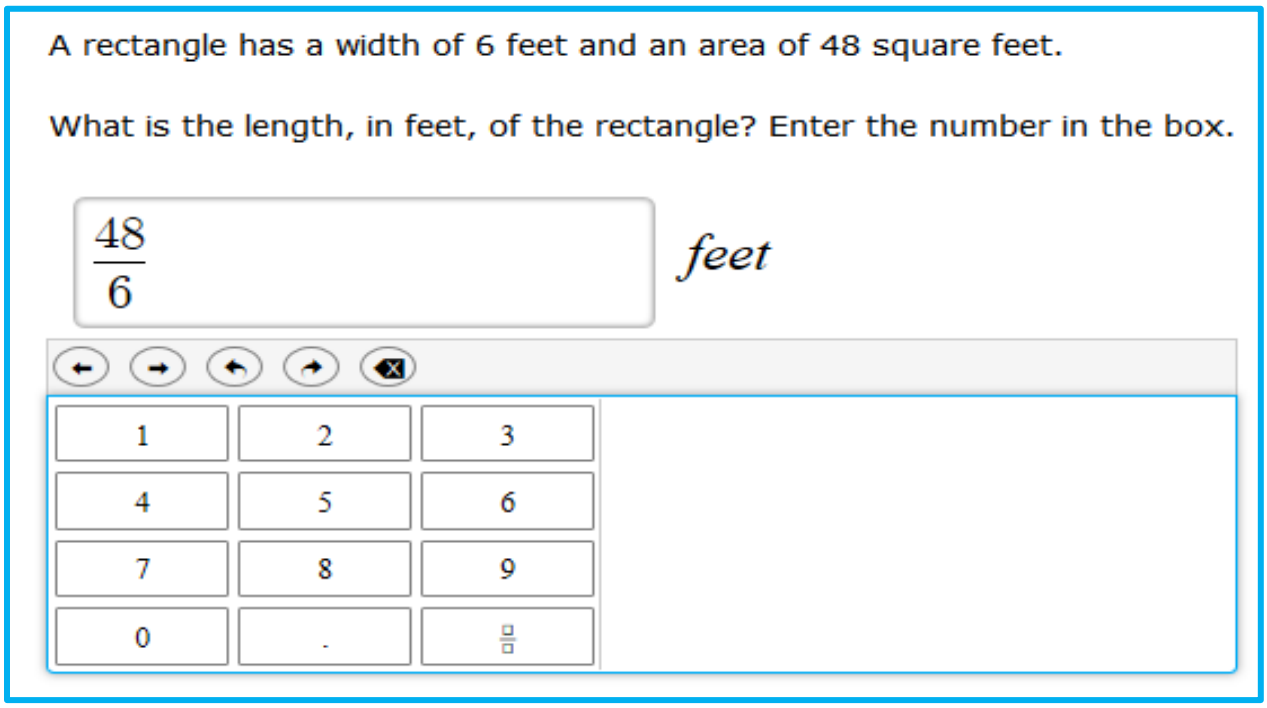
Notes on Scoring

This response earns full credit (1 point) because it identifies the correct length, in feet, of the rectangle.

- The student may create an area model to develop their mathematical thinking and to identify the length of the rectangle using the relationship between multiplication and division.



Sample Response: 1 point



Notes on Scoring

This response earns full credit (1 point) because it identifies the correct length, in feet, of the rectangle.

- The student may divide 48 by 6 and identify a value equivalent to the length, in feet, of the rectangle.

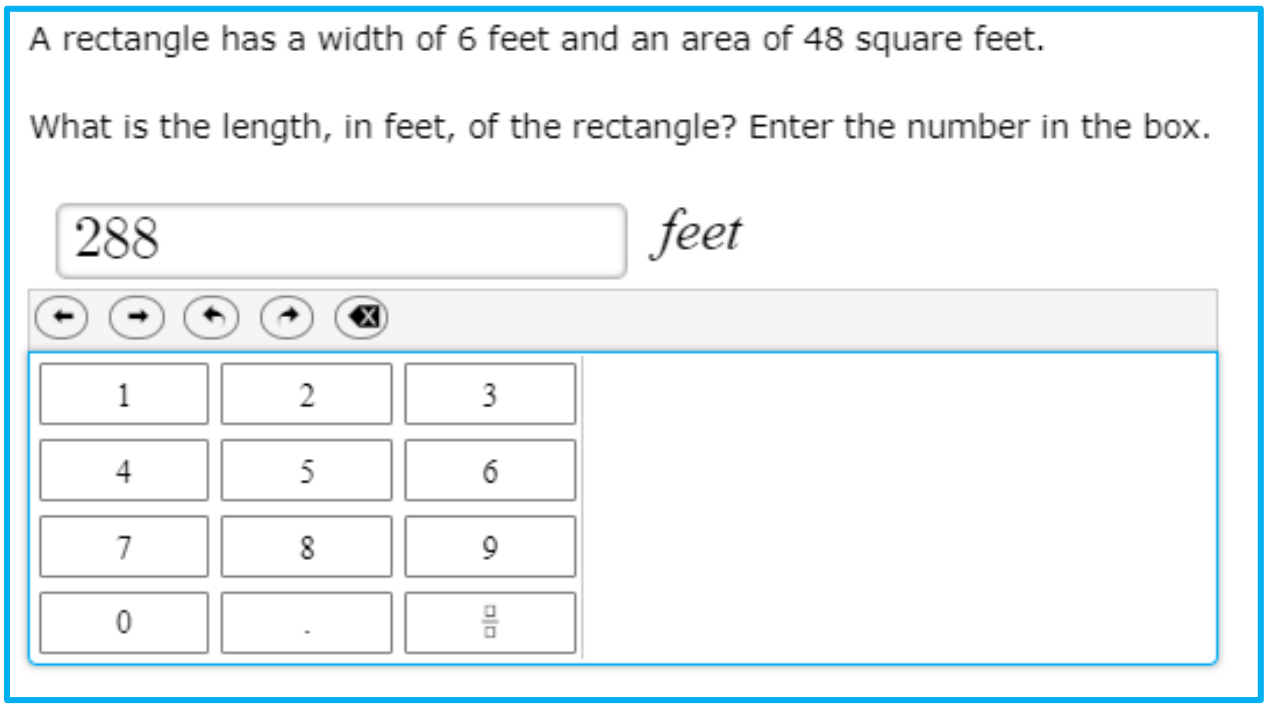
$48 \div 6 = ?$

$48 \div 6 = \frac{48}{6}$

$\frac{48}{6} = \frac{48 \div 6}{6 \div 6} = \frac{8}{1}$

$\frac{8}{1} = 8$

Sample Response: 0 points

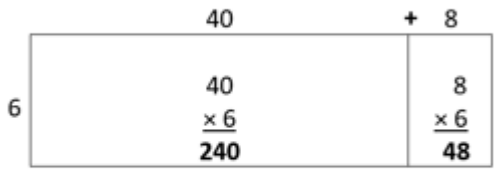


Notes on Scoring

This response earns no credit (0 points) because it identifies the incorrect length, in feet, of the rectangle.

- The student may multiply 48 × 6 using an area model, instead of dividing.

6×48
$= 6 \times (40 + 8)$



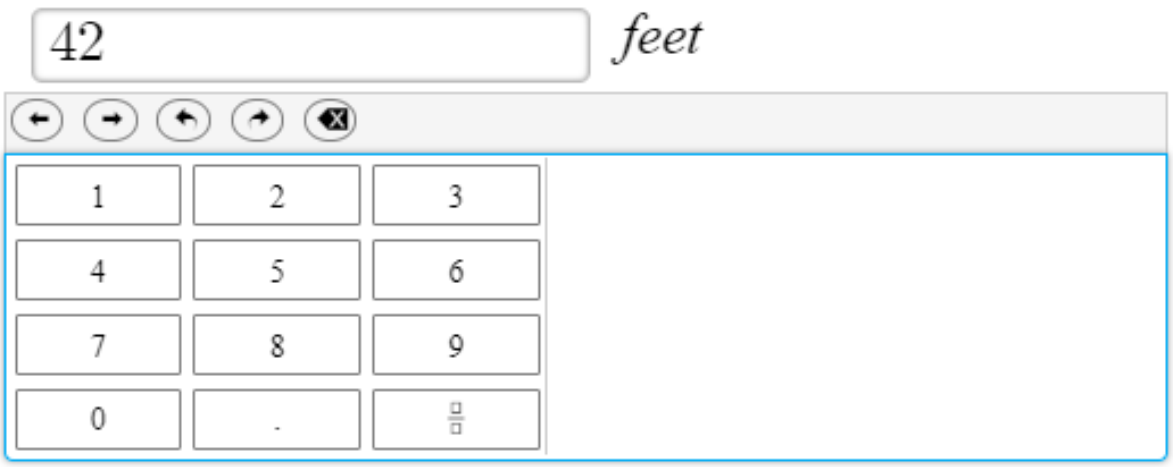
$240 + 48 = 288$

$48 \div 6 \neq 288$

Sample Response: 0 points

A rectangle has a width of 6 feet and an area of 48 square feet.

What is the length, in feet, of the rectangle? Enter the number in the box.



Notes on Scoring

This response earns no credit (0 points) because it identifies the incorrect length, in feet, of the rectangle.

- The student may subtract 48 – 6 to find the unknown side length, instead of dividing.
  $48 - 6 = 42$

  $48 \div 6 \neq 42$

Grade 3
Math
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Question 34

Question and Scoring Guidelines

Question 34

Miss Lewis teaches 3 dance classes. There are 9 students in each class.

How many students does Miss Lewis teach? Enter the number in the box.

Points Possible: 1

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

Content Standard: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. *(3.OA.3)*

Scoring Guidelines

Exemplar Response

- 27

Other Correct Responses

- Any equivalent decimal value

For this item, a full-credit response includes:

- The correct value (1 point).

Grade 3
Math
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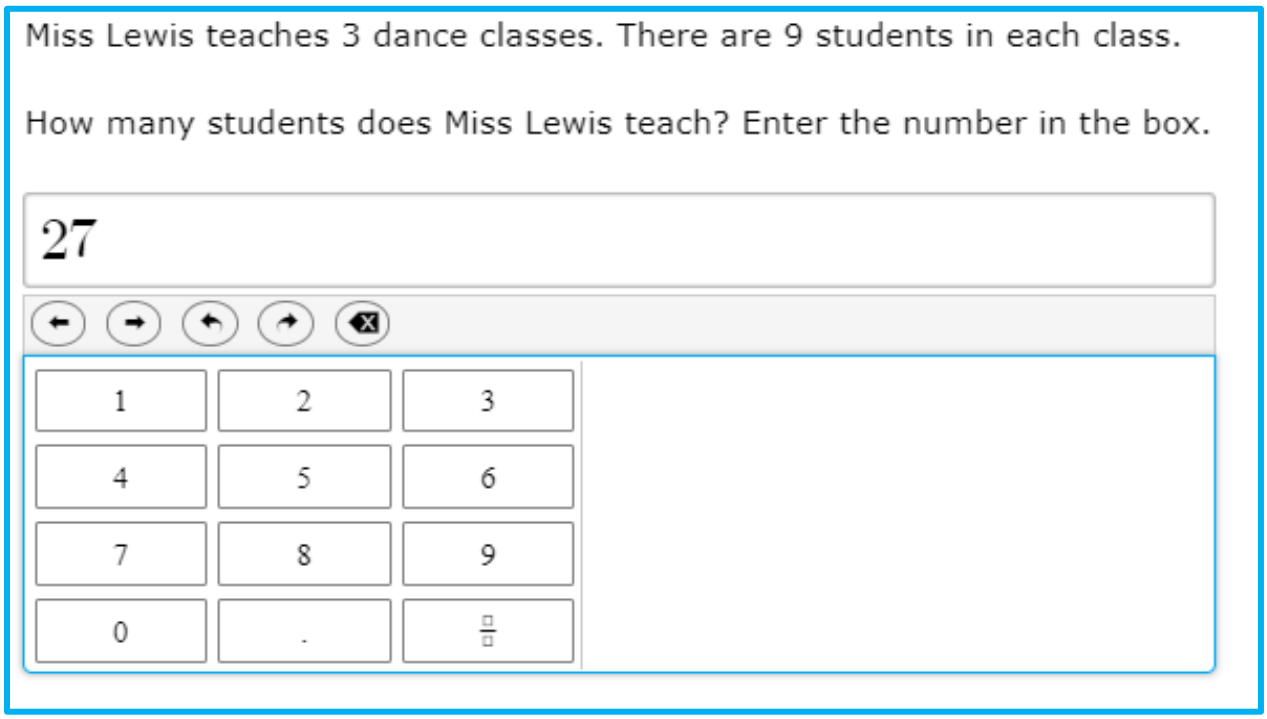
Question 34

Sample Responses

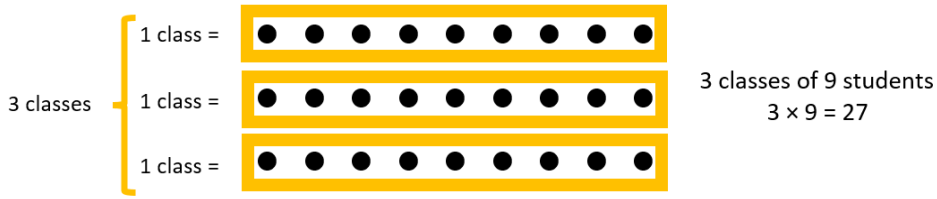
Sample Response: 1 point



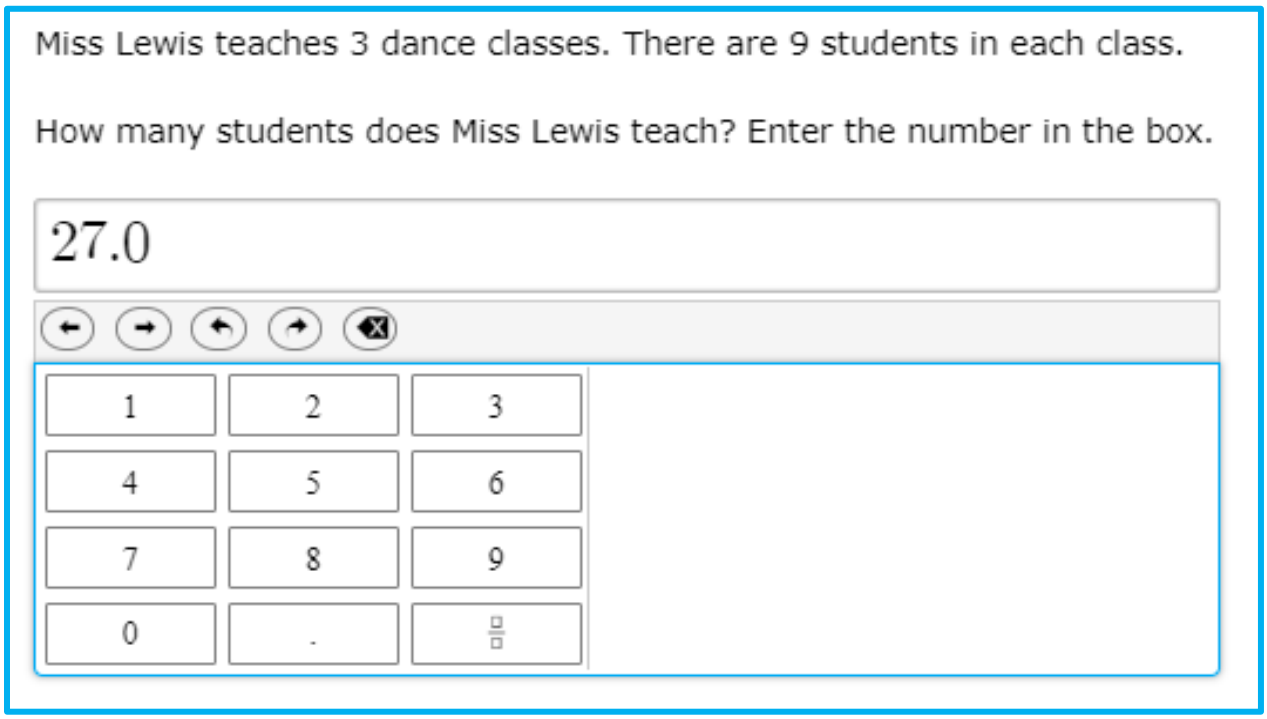
Notes on Scoring

This response earns full credit (1 point) because it identifies the correct number of students Miss Lewis teaches.

- The student may draw an array to help them develop their mathematical thinking and identify the product of 3 × 9.



Sample Response: 1 point



Notes on Scoring

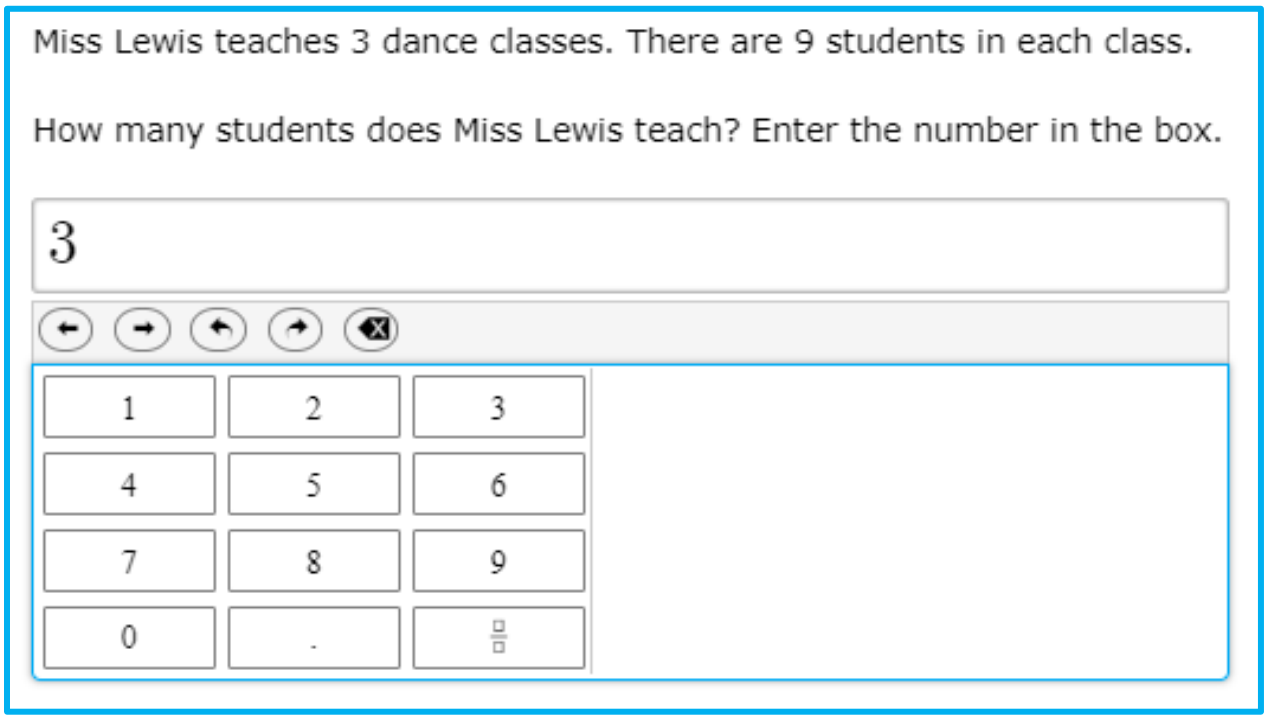
This response earns full credit (1 point) because it identifies the correct number of students Miss Lewis teaches.

- The student may use repeated addition and the relationship between addition and multiplication to identify the total.

  $9.0 + 9.0 + 9.0$
  $= 3 \times 9.0$
  $= 27.0$

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.

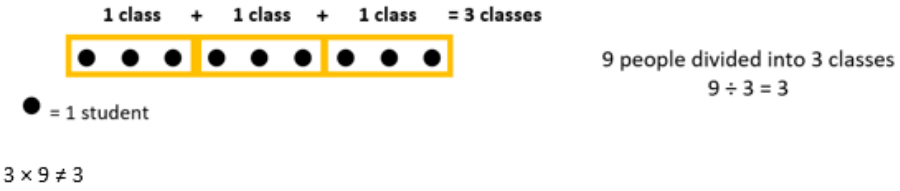
Sample Response: 0 points



Notes on Scoring

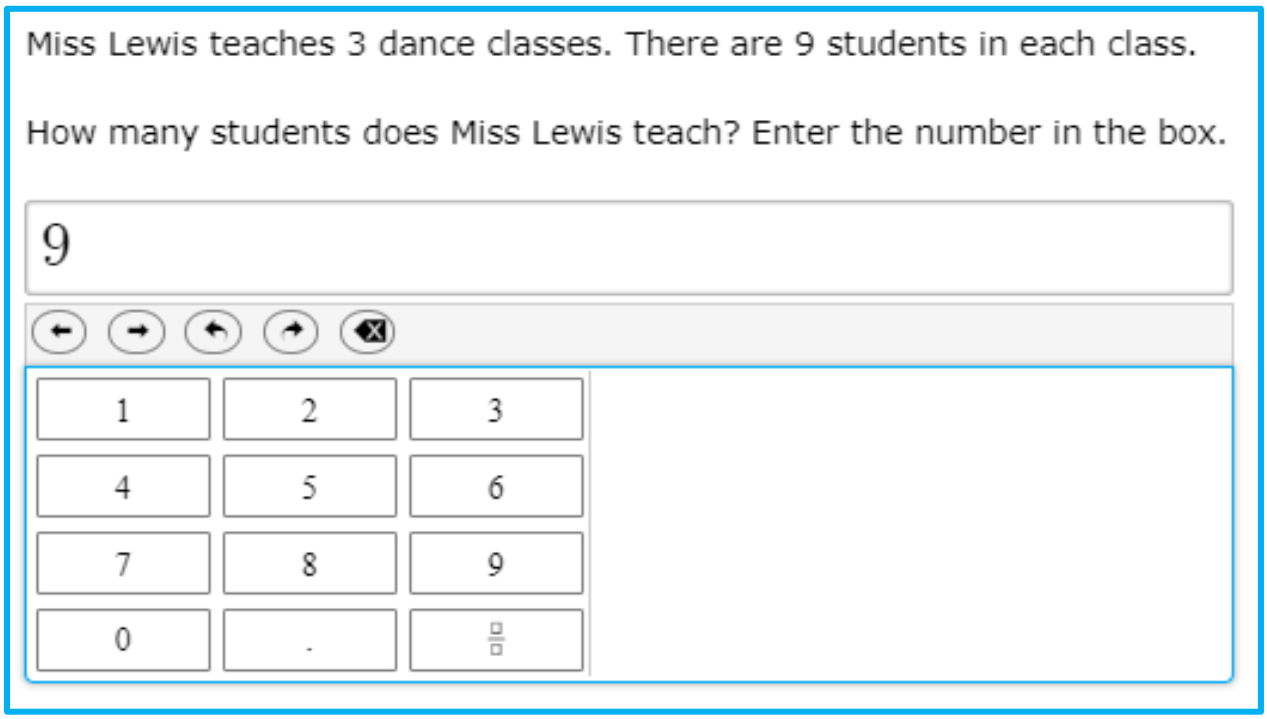
This response earns no credit (0 points) because it identifies an incorrect number of students Miss Lewis teaches.

- The student may draw an array to help them develop their mathematical thinking and divide instead of multiply the number of students in each class by the number of classes Miss Lewis teaches.



$3 \times 9 \neq 3$

Sample Response: 0 points



Notes on Scoring

This response earns no credit (0 points) because it identifies an incorrect number of students Miss Lewis teaches.

- The student may think Miss Lewis teaches the same nine students in each of her three classes.

Grade 3

Math
Spring 2018 Item Release

Question 35

Question and Scoring Guidelines

Question 35

Mr. Burrows starts mowing the lawn at 12:05 p.m. He also does the following:

- He stops to eat lunch 45 minutes after he starts mowing the lawn.
- After lunch, he mows the lawn for 35 more minutes.
- He finishes mowing the lawn at 1:45 p.m.

A. What time does Mr. Burrows begin eating lunch?

B. How long, in minutes, did it take him to eat lunch?

A.		:		p.m.
B.			minutes	

Points Possible: 2

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

Content Standard: Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram. *(3.MD.1)*

Scoring Guidelines

Exemplar Response

A. 12:50 p.m.
B. 20 minutes

Other Correct Responses

- Any equivalent time in Part A
- For Part B, the student can get credit for 1:10 p.m. – the time given in Part A provided that the time in Part A is between 12:05 p.m. and 1:10 p.m.

For this item, a full-credit response includes:

- The correct time (1 point);
  AND
- The correct number of minutes (1 point).

Grade 3
Math
Spring 2018 Item Release

Question 35

Sample Responses

Sample Response: 2 points

Mr. Burrows starts mowing the lawn at 12:05 p.m. He also does the following:

- He stops to eat lunch 45 minutes after he starts mowing the lawn.
- After lunch, he mows the lawn for 35 more minutes.
- He finishes mowing the lawn at 1:45 p.m.

A. What time does Mr. Burrows begin eating lunch?

B. How long, in minutes, did it take him to eat lunch?

A.	12	:	50	p.m.
B.	20		minutes	

Notes on Scoring

This response earns full credit (2 points) because it identifies the correct time Mr. Burrows begins eating lunch and the correct length of time, in minutes, it takes him to eat lunch.

- The student may add 45 minutes to the 12:05 p.m. start time to determine when Mr. Burrows stops for lunch.
- The student may create a number line to help develop their mathematical thinking and count down from 1:45 p.m. to determine the amount of time Mr. Burrows stops for lunch.

Sample Response: 2 points

Mr. Burrows starts mowing the lawn at 12:05 p.m. He also does the following:

- He stops to eat lunch 45 minutes after he starts mowing the lawn.
- After lunch, he mows the lawn for 35 more minutes.
- He finishes mowing the lawn at 1:45 p.m.

A. What time does Mr. Burrows begin eating lunch?

B. How long, in minutes, did it take him to eat lunch?

A.	12	:	50	p.m.
B.	20.00		minutes	

Notes on Scoring

This response earns full credit (2 points) because it identifies the correct time Mr. Burrows begins eating lunch and the correct length of time, in minutes, it takes him to eat lunch.

- In Part A, the student may count up 45 minutes from 12:05 p.m.

  12:05 p.m. **+ 5.00 minutes** = 12: 10 p.m.
  12:10 p.m. **+ 10.00 minutes** = 12: 20 p.m.
  12:20 p.m. **+ 10.00 minutes** = 12: 30 p.m.
  12:30 p.m. **+ 10.00 minutes** = 12: 40 p.m.
  12:40 p.m. **+ 10.00 minutes** = 12: 50 p.m.

  5.00 + 10.00 + 10.00 + 10.00 + 10.00 = 45.00 minutes

- In Part B, the student may first count down 35 minutes from 1:45 p.m. to find the time Mr. Burrows finishes lunch and then count down from 1:10 p.m. to 12:50 p.m. to determine the length, in minutes, it takes him to eat lunch.

1:45 p.m. – **5.00 minutes** = 1:40 p.m.
1:40 p.m. – **10.00 minutes** = 1:30 p.m.
1:30 p.m. – **10.00 minutes** = 1:20 p.m.
1:20 p.m. – **10.00 minutes** = 1:10 p.m.
5.00 + 10.00 + 10.00 + 10.00 = 35.00 minutes

Mr. Burrows finished lunch at 1:10 p.m.
1:10 p.m. – **10.00 minutes** = 1:00 p.m.
1:00 p.m. – **10.00 minutes** = 12:50 p.m.
Mr. Burrows started lunch at 12:50 p.m.
10.00 + 10.00 = 20.00 minutes

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: 1 point

Mr. Burrows starts mowing the lawn at 12:05 p.m. He also does the following:

- He stops to eat lunch 45 minutes after he starts mowing the lawn.
- After lunch, he mows the lawn for 35 more minutes.
- He finishes mowing the lawn at 1:45 p.m.

A. What time does Mr. Burrows begin eating lunch?

B. How long, in minutes, did it take him to eat lunch?

A.	1	:	00	p.m.
B.	10		minutes	

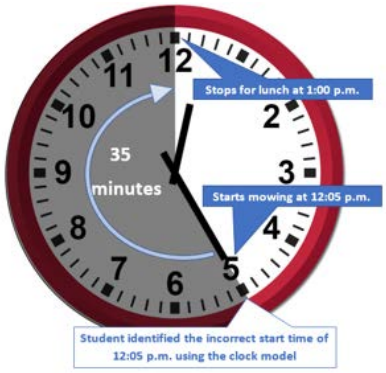
Notes on Scoring

This response earns partial credit (1 point) because it identifies the incorrect time Mr. Burrows begins eating lunch, but it identifies the correct length of time, in minutes, it takes Mr. Burrows to eat lunch based on the error carried through from Part A.

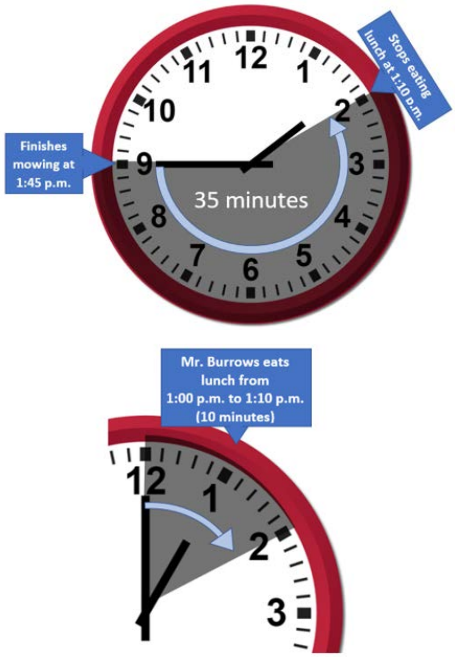
Notes on Scoring continued on the next page

Notes on Scoring (continued)

- In Part A, the student may use a clock model to develop their mathematical thinking but place the minute hand incorrectly to show 12:05 p.m. Then the student may count up 35 minutes instead of 45 minutes from the incorrect starting time on the clock to identify when Mr. Burrows starts lunch.



- In Part B, the student may use a clock model to develop their mathematical thinking and count back 35 minutes from 1:45 p.m. to determine when Mr. Burrows finishes his lunch. Then the student may use the clock model to determine how long Mr. Burrows stops for lunch.



Sample Response: 1 point

Mr. Burrows starts mowing the lawn at 12:05 p.m. He also does the following:

- He stops to eat lunch 45 minutes after he starts mowing the lawn.
- After lunch, he mows the lawn for 35 more minutes.
- He finishes mowing the lawn at 1:45 p.m.

A. What time does Mr. Burrows begin eating lunch?

B. How long, in minutes, did it take him to eat lunch?

A.	12	:	50	p.m.
B.	35		minutes	

Notes on Scoring

This response earns partial credit (1 point) because it identifies the correct time Mr. Burrows begins eating lunch but it identifies the incorrect length of time, in minutes, it takes Mr. Burrows to eat lunch.

- In Part A, the student may use a clock model to develop their mathematical thinking and count up 45 minutes from 12:05 p.m. to identify when Mr. Burrows starts lunch.

- The student may mistakenly think that the 35 minutes in the question is how long it takes Mr. Burrows to eat lunch.

Sample Response: 0 points

Mr. Burrows starts mowing the lawn at 12:05 p.m. He also does the following:

- He stops to eat lunch 45 minutes after he starts mowing the lawn.
- After lunch, he mows the lawn for 35 more minutes.
- He finishes mowing the lawn at 1:45 p.m.

A. What time does Mr. Burrows begin eating lunch?

B. How long, in minutes, did it take him to eat lunch?

A.	12	:	05	p.m.
B.	35		minutes	

Notes on Scoring

This response earns no credit (0 points) because it identifies the incorrect time Mr. Burrows began eating lunch and the incorrect length of time, in minutes, it took him to eat lunch.

- The student may mistakenly think that the question states that Mr. Burrows takes a 35-minute lunch break starting at 12:05 p.m.

Sample Response: 0 points

Mr. Burrows starts mowing the lawn at 12:05 p.m. He also does the following:

- He stops to eat lunch 45 minutes after he starts mowing the lawn.
- After lunch, he mows the lawn for 35 more minutes.
- He finishes mowing the lawn at 1:45 p.m.

A. What time does Mr. Burrows begin eating lunch?

B. How long, in minutes, did it take him to eat lunch?

A.	12	:	45	p.m.
B.	60		minutes	

Notes on Scoring

This response earns no credit (0 points) because it identifies the incorrect time Mr. Burrows begins eating lunch and the incorrect length of time, in minutes, it takes him to eat lunch.

- The student may think Mr. Burrows starts mowing at 12:00 p.m. instead of 12:05 p.m.
- The student may think it takes Mr. Burrows from 12:45 p.m. to 1:45 p.m. to eat lunch and that Mr. Burrows finishes mowing when he stops for lunch.

PART A

12:00 + 0:45 = 12:45 p.m.
12:05 + 0:45 ≠ 12:45 p.m.

PART B

12:45 + 1:00 = 1:45 p.m.

12:45 + ☐ + 0:35 = 1:45 p.m.
☐ = 1:00
12:45 + 1:00 + 0:35 ≠ 1:45 p.m.

Grade 3
Math
Spring 2018 Item Release

Question 40

Question and Scoring Guidelines

Question 40

Yang has an apple tree. He records how many apples he picks each day in the table shown.

Number of Apples Picked

Monday	4
Tuesday	6
Wednesday	2
Thursday	8
Friday	10

Create a picture graph to represent the data.

A. Select a number for the scale of the picture graph.

B. Select apples in each row to create the picture graph.

- There may be more than one correct answer.

A. Select a scale for the graph.

2 3 4

B. Number of Apples Picked

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

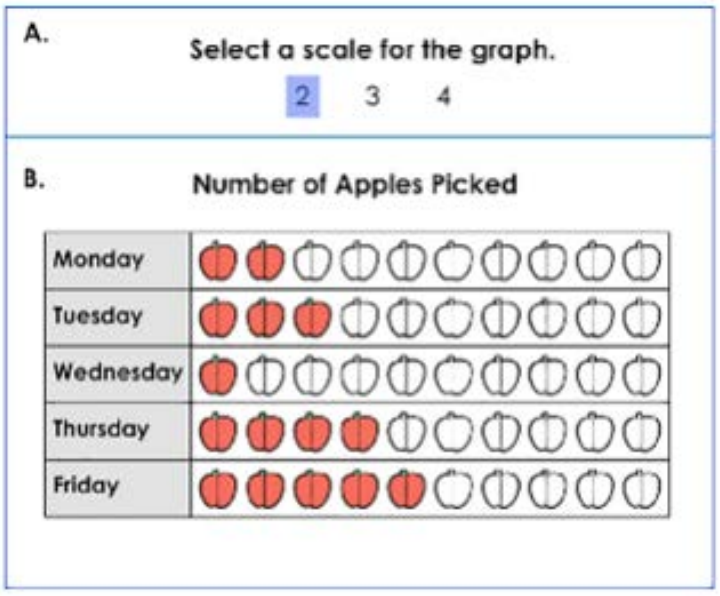
Points Possible: 1

Content Cluster: Represent and interpret data.

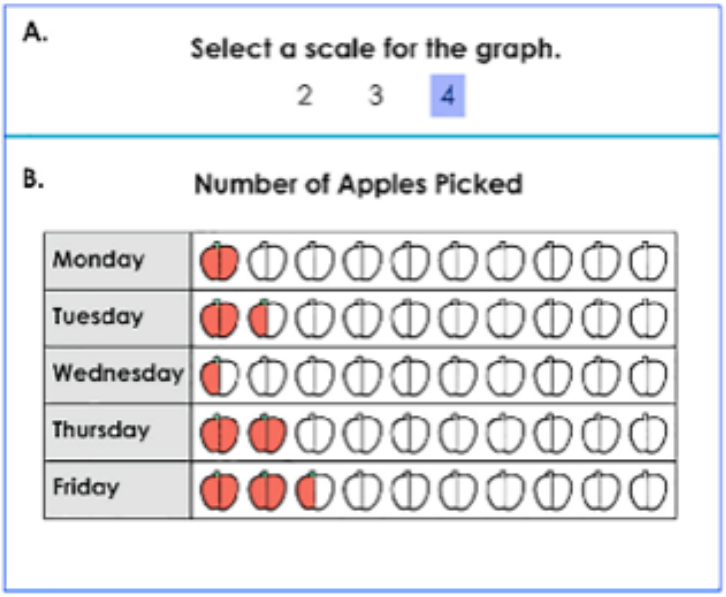
Content Standard: Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets. (3.MD.3)*

Scoring Guidelines

Exemplar Response



Other Correct Responses



For this item, a full-credit response includes:

- A correct scale and a correct picture graph (1 point).

Grade 3
Math
Spring 2018 Item Release

Question 40

Sample Responses

Sample Response: 1 point

Yang has an apple tree. He records how many apples he picks each day in the table shown.

Number of Apples Picked

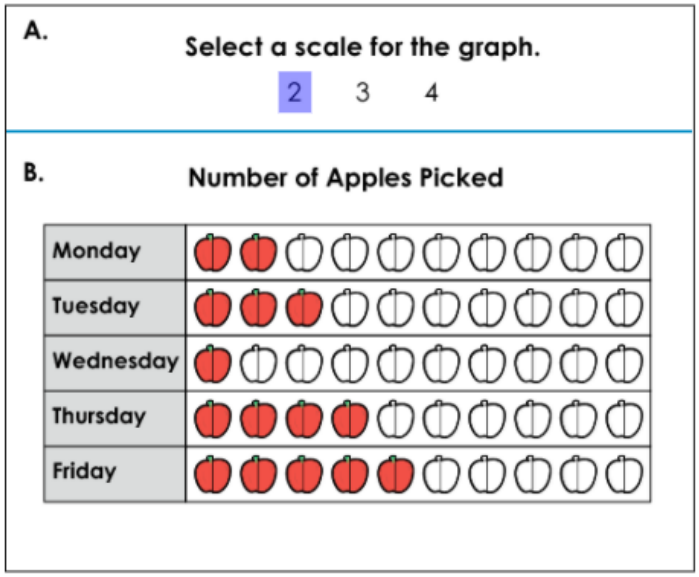
Monday	4
Tuesday	6
Wednesday	2
Thursday	8
Friday	9

Create a picture graph to represent the data.

A. Select a number for the scale of the picture graph.

B. Select apples in each row to create the picture graph.

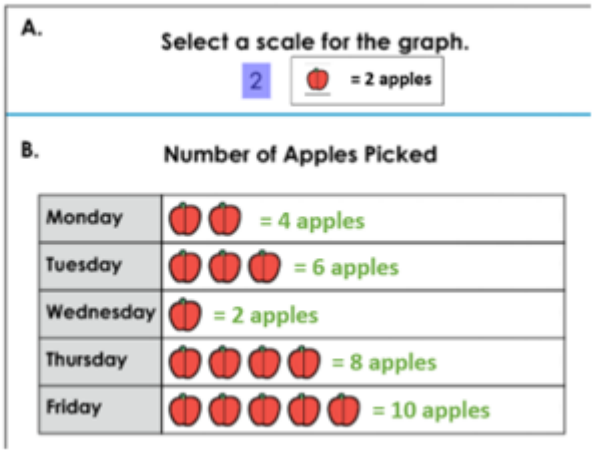
- There may be more than one correct answer.



Notes on Scoring

This response earns full credit (1 point) because it identifies a correct number for the scale of the picture graph and represents the data correctly based on the scale.

Number of Apples Picked	
Monday	4
Tuesday	6
Wednesday	2
Thurs	8
Friday	10



Sample Response: 1 point

Yang has an apple tree. He records how many apples he picks each day in the table shown.

Number of Apples Picked

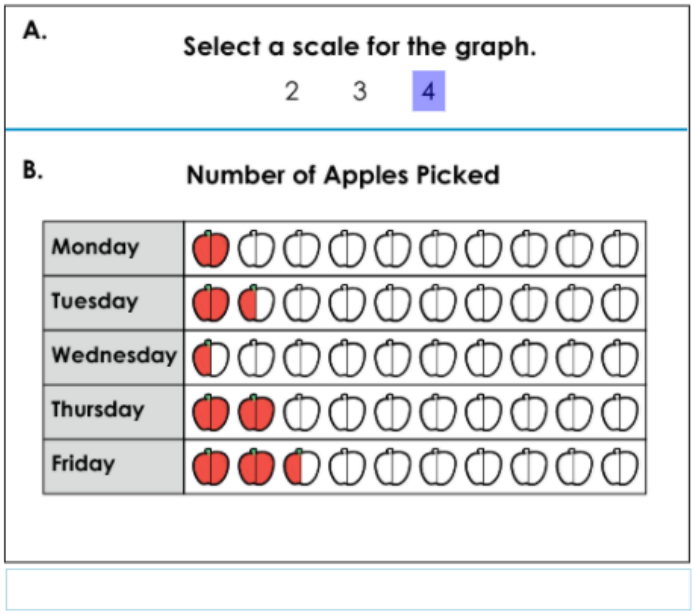
Monday	4
Tuesday	6
Wednesday	2
Thursday	8
Friday	9

Create a picture graph to represent the data.

A. Select a number for the scale of the picture graph.

B. Select apples in each row to create the picture graph.

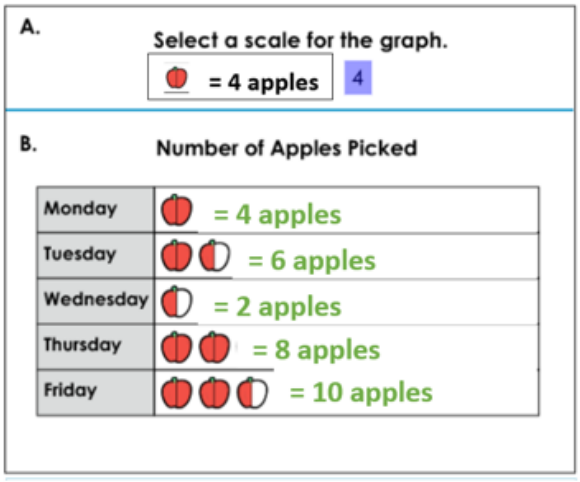
- There may be more than one correct answer.



Notes on Scoring

This response earns full credit (1 point) because it identifies a correct number for the scale of the picture graph and represents the data correctly based on the scale.

Number of Apples Picked	
Monday	4
Tuesday	6
Wednesday	2
Thurs	8
Friday	10



Sample Response: 0 points

Yang has an apple tree. He records how many apples he picks each day in the table shown.

Number of Apples Picked

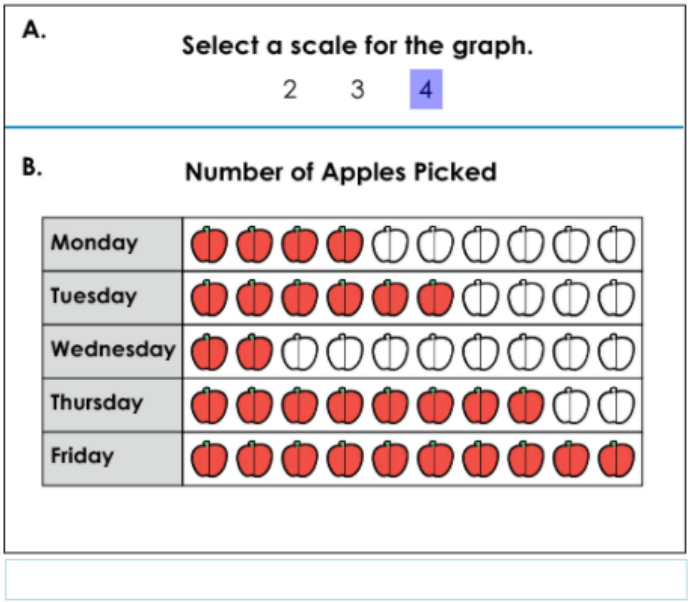
Monday	4
Tuesday	6
Wednesday	2
Thursday	8
Friday	10

Create a picture graph to represent the data.

A. Select a number for the scale of the picture graph.

B. Select apples in each row to create the picture graph.

- There may be more than one correct answer.

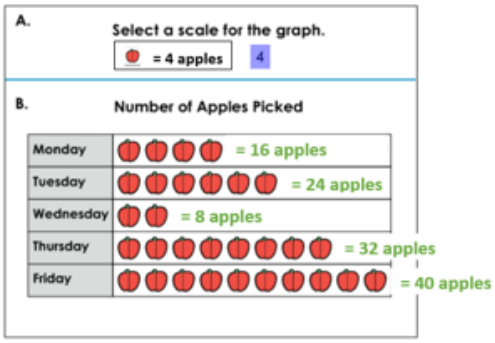


Notes on Scoring

This response earns no credit (0 points) because it represents the data incorrectly based on the scale chosen for the picture graph.

- In Part B, the student selects the incorrect number of apples in the picture graph based on the scale selected in Part A.

Number of Apples Picked	
Monday	4
Tuesday	6
Wednesday	2
Thurs	8
Friday	10



Sample Response: 0 points

Yang has an apple tree. He records how many apples he picks each day in the table shown.

Number of Apples Picked

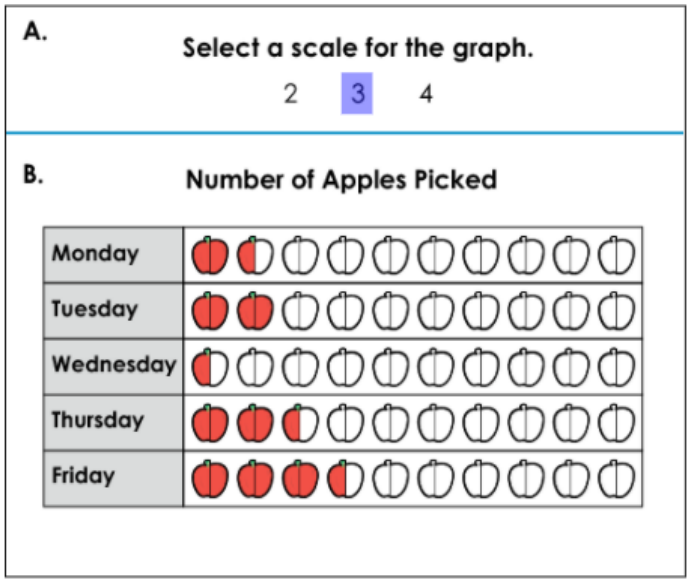
Monday	4
Tuesday	6
Wednesday	2
Thursday	8
Friday	9

Create a picture graph to represent the data.

A. Select a number for the scale of the picture graph.

B. Select apples in each row to create the picture graph.

- There may be more than one correct answer.

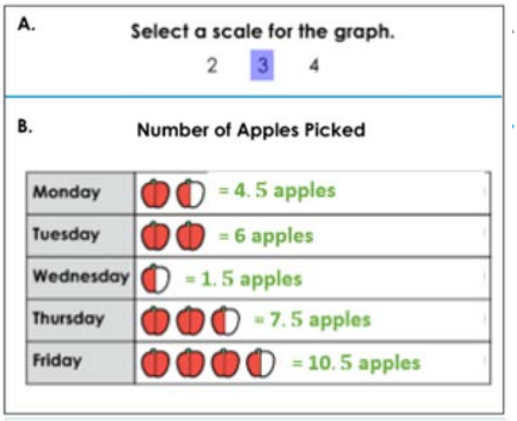


Notes on Scoring

This response earns no credit (0 points) because it identifies a scale which cannot be used to correctly represent the data on the picture graph.

- The student selects an incorrect scale based on the number of apples picked and creates an incorrect picture graph based on the scale in Part A.

Number of Apples Picked	
Monday	4
Tuesday	6
Wednesday	2
Thurs	8
Friday	10



Grade 3
Math
Spring 2018 Item Release

Question 42

Question and Scoring Guidelines

Question 42

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.

Number of Rows	Number of Desks in Each Row

Points Possible: 1

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

Content Standard: Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7. (3.OA.1)*

Scoring Guidelines

Exemplar Response

Number of Rows	Number of Desks in Each Row
3	8

Other Correct Responses

- Any combination where the produce is equal to 24

For this item, a full-credit response includes:

- A correct table (1 point).

Grade 3
Math
Spring 2018 Item Release

Question 42

Sample Responses

Sample Response: 1 point

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

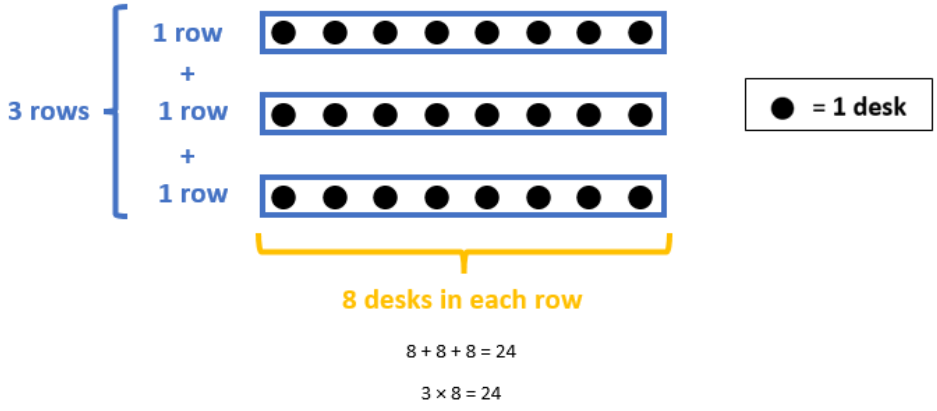
Complete the table to show one way that Mrs. Tate could arrange all of the desks into rows.

Number of Rows	Number of Desks in Each Row
3	8

Notes on Scoring

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

- The student may draw an array to represent rows and desks per row that equal 24.



Sample Response: 1 point

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

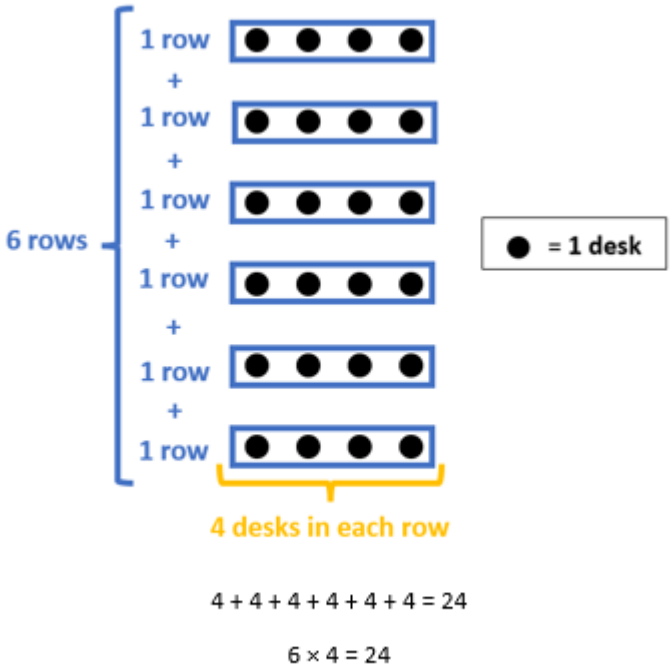
Complete the table to show one way that Mrs. Tate could arrange all of the desks into rows.

Number of Rows	Number of Desks in Each Row
6	4

Notes on Scoring

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

- The student may draw an array to represent rows and desks per row that equal 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.

Number of Rows	Number of Desks in Each Row
12	12

Notes on Scoring

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

- The student may use addition to identify two numbers that add up to 24 instead of finding two numbers that can be multiplied to get 24.

  $24 - 12 = 12$ AND $12 + 12 = 24$

  $12 \times 12 \neq 24$

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

Number of Rows	Number of Desks in Each Row
10	14

Notes on Scoring

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

- The student may use 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.

$24 - 10 = 14$ AND $10 + 14 = 24$

$10 \times 14 \neq 24$

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