

# Ohio's State Tests

**ITEM RELEASE**

**SPRING 2017**

**GRADE 3  
MATHEMATICS**

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**Grade 3 Math**  
**Spring 2017 Item Release**  
**Content Summary and Answer Key**

Question No.	Item Type	Content Cluster	Content Standard	Answer Key	Points
1	Equation Item	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. <i>For example, draw a bar graph in which each square in the bar graph might represent 5 pets. (3.MD.3)</i>	---	1 point
2	Multiple Choice	Develop understanding of fractions as numbers.	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)	D	1 point
3	Equation Item	Use place value understanding and properties of operations to perform multi-digit arithmetic.	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. (3.NBT.2)	---	1 point
4	Multiple Choice	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	Relate area to the operations of multiplication and addition. <i>d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. (3.MD.7d)</i>	C	1 point

**Grade 3 Math**  
**Spring 2017 Item Release**  
**Content Summary and Answer Key**

Question No.	Item Type	Content Cluster	Content Standard	Answer Key	Points
5	Equation Item	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)	---	1 point
6	Multi-Select Item	Reason with shapes and their attributes.	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. (3.G.1)	B, D	1 point
7	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)	---	2 points

**Grade 3 Math**  
**Spring 2017 Item Release**  
**Content Summary and Answer Key**

Question No.	Item Type	Content Cluster	Content Standard	Answer Key	Points
8	Multiple Choice	Represent and solve problems involving multiplication and division.	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. <i>For example, describe a context in which a number of shares or a number of groups can be expressed as <math>56 \div 8</math>.</i> (3.OA.2)	D	1 point
9	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)	B	1 point
10	Equation 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., $9 \times 80$ , $5 \times 60$ ) using strategies based on place value and properties of operations. (3.NBT.3)	---	1 point

**Grade 3 Math**  
**Spring 2017 Item Release**  
**Content Summary and Answer Key**

Question No.	Item Type	Content Cluster	Content Standard	Answer Key	Points
11	Equation Item	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)	---	1 point
12	Short Response	Develop understanding of fractions as numbers.	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)	---	2 points
13	Equation Item	Understand properties of multiplication and the relationship between multiplication and division.	Understand division as an unknown-factor problem. <i>For example, find <math>32 \div 8</math> by finding the number that makes 32 when multiplied by 8.</i> (3.OA.6)	---	1 point
14	Graphic Response Item	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 $\frac{a}{b}$ 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)	---	2 points

**Grade 3 Math**  
**Spring 2017 Item Release**  
**Content Summary and Answer Key**

Question No.	Item Type	Content Cluster	Content Standard	Answer Key	Points
15	Multi-Select 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)	C, E	1 point
16	Table Item	Represent and solve problems involving multiplication and division.	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations <math>8 \times \square = 48</math>, <math>5 = \square \div 3</math>, <math>6 \times 6 = \square</math>.</i> (3.OA.4)	---	2 points



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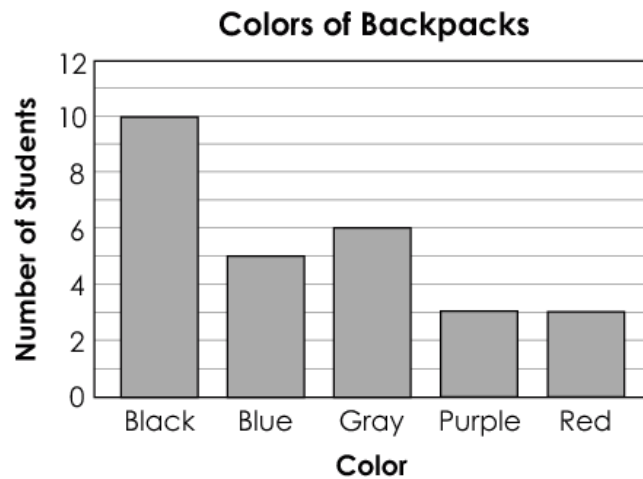
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**Question 1**

**Question and Scoring Guidelines**

## Question 1

The graph shows the colors of students' backpacks in a third-grade class.



How many more students have black backpacks than have blue backpacks? Enter the number in the box.

← → ↶ ↷ ✕

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

**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

- 5

## Other Correct Responses

- Any equivalent value

For this item, a full-credit response includes:

- The correct value (1 point).



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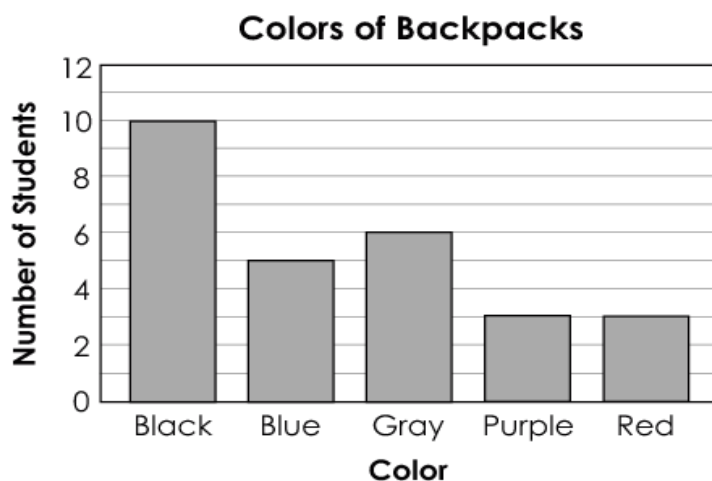
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**Question 1**

**Sample Responses**

## Sample Response: 1 point

The graph shows the colors of students' backpacks in a third-grade class.



How many more students have black backpacks than have blue backpacks? Enter the number in the box.

5



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

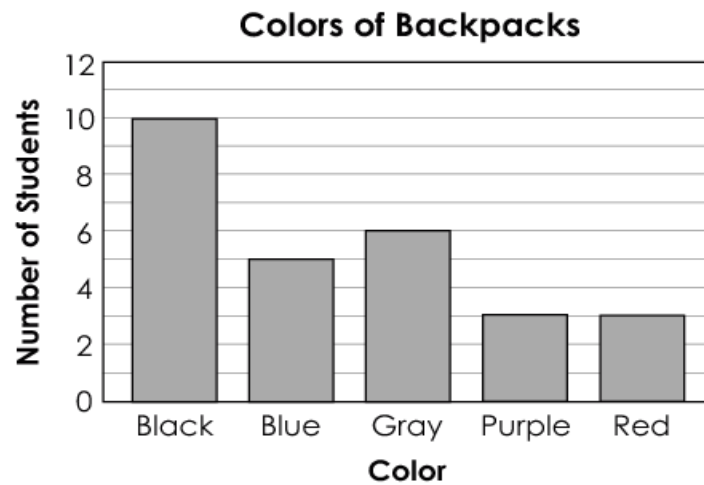
### Notes on Scoring

This response earns full credit (1 point) because it correctly identifies how many more students have black backpacks than blue backpacks.

- The student may use subtraction to find how many more students have black backpacks than blue backpacks  
 $10 - 5 = 5$

## Sample Response: 1 point

The graph shows the colors of students' backpacks in a third-grade class.



How many more students have black backpacks than have blue backpacks? Enter the number in the box.

5.0



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

### Notes on Scoring

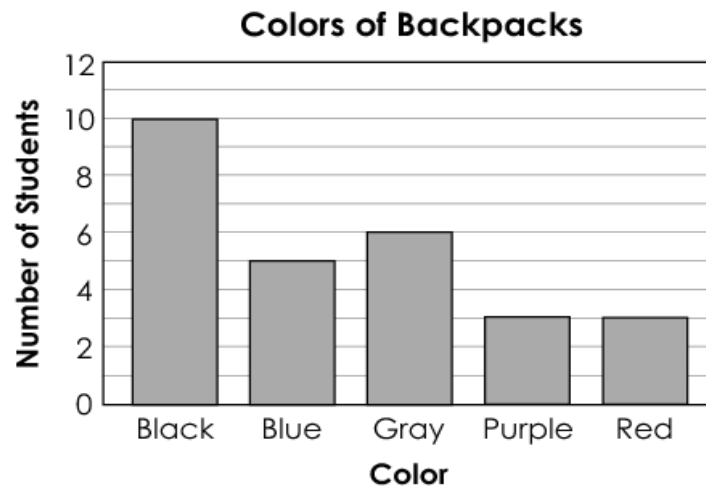
This response earns full credit (1 point) because it correctly identifies how many more students have black backpacks than blue backpacks.

- The student may use subtraction to find how many more students have black backpacks than blue backpacks.  
 $10.0 - 5.0 = 5.0$

*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 graph shows the colors of students' backpacks in a third-grade class.



How many more students have black backpacks than have blue backpacks? Enter the number in the box.

15



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

### Notes on Scoring

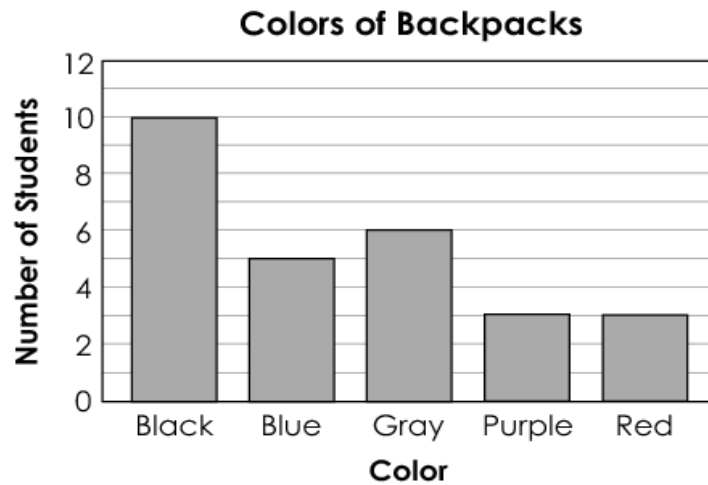
This response earns no credit (0 points) because it incorrectly identifies how many more students have black backpacks than blue backpacks.

- The student may use the incorrect operation and add instead of subtract to find how many more students have black backpacks than blue backpacks.  
 $10 + 5 = 15$



## Sample Response: 0 points

The graph shows the colors of students' backpacks in a third-grade class.



How many more students have black backpacks than have blue backpacks? Enter the number in the box.

4



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 incorrectly identifies how many more students have black backpacks than blue backpacks.

- The student may identify the incorrect number of blue backpacks and use subtraction to find how many more students have black backpacks than blue backpacks.  
 $10 - 6 = 4$



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**Question 2**

**Question and Scoring Guidelines**

## Question 2

A girl has the candy bar shown.



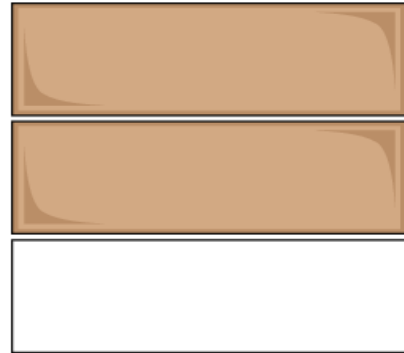
She breaks it into thirds. She gives  $\frac{1}{3}$  of the candy bar to a friend.

Which model shows the fraction of the candy bar the girl has left?

(A)



(C)



(B)



(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 forget that each third must be the same size.

Rationale for Option B: This is incorrect. The student may think that the numerator tells how to subdivide the model and the denominator tells how many pieces to shade.

Rationale for Option C: This is incorrect. The student may confuse what a part is with what a whole is.

Rationale for Option D: **Key** – The student correctly identifies the area model for  $\frac{2}{3}$ .

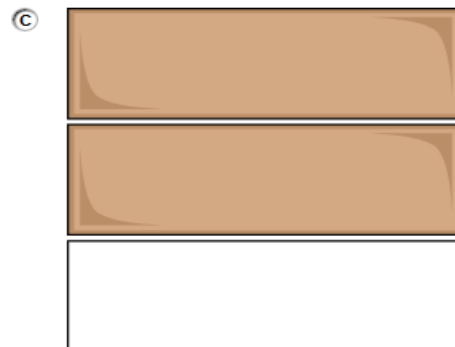
### Sample Response: 1 point

A girl has the candy bar shown.



She breaks it into thirds. She gives  $\frac{1}{3}$  of the candy bar to a friend.

Which model shows the fraction of the candy bar the girl has left?





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**Question 3**

**Question and Scoring Guidelines**

### Question 3

An equation is shown.

$$263 - 115 - 36 = \square$$

What is the missing number? Enter the number in the box.

← → ↶ ↷ ✕

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

**Points Possible:** 1

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

**Content Standard:** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. (3.NBT.2)



# Scoring Guidelines

## Exemplar Response

- 112

## Other Correct Responses

- Any equivalent value

For this item, a full-credit response includes:

- The correct value (1 point).



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Math  
Spring 2017 Item Release**

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**Question 3**

**Sample Responses**

## Sample Response: 1 point

An equation is shown.

$$263 - 115 - 36 = \square$$

What is the missing number? Enter the number in the box.

112



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 missing number.

- The student may use a strategy, such as adding on, to identify the missing number.

$$263 - 115 = \square$$

$$115 + 5 = 120$$

$$120 + 80 = 200$$

$$200 + 60 = 260$$

$$260 + 3 = 263$$

$$80 + 60 + 5 + 3 = 148$$

$$263 - 115 = 148$$

$$148 - 36 = \square$$

$$36 + 4 = 40$$

$$40 + 60 = 100$$

$$100 + 40 = 140$$

$$140 + 8 = 148$$

$$60 + 40 + 8 + 4 = 112$$

$$148 - 36 = 112$$

$$263 - 115 - 36 = 112$$

## Sample Response: 1 point

An equation is shown.

$$263 - 115 - 36 = \square$$

What is the missing number? Enter the number in the box.

112.0



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 missing number.

- The student may use a strategy, such as subtracting back, to identify the missing number.

$$\begin{array}{rcl} 263.0 - 100.0 & = & 163.0 \\ 163.0 - 10.0 & = & 153.0 \\ 153.0 - 5.0 & = & 148.0 \end{array} \quad \begin{array}{l} \rightarrow \\ \downarrow \end{array} \quad \begin{array}{rcl} 148.0 - 30.0 & = & \\ 118.0 & & \\ 118.0 - 6.0 & = & \\ 112.0 & & \end{array}$$

$$115.0 = 100.0 + 10.0 + 5.0$$

$$30.0 + 6.0 = 36.0$$

$$263.0 - 115.0 - 36.0 = 112.0$$

*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

An equation is shown.

$$263 - 115 - 36 = \square$$

What is the missing number? Enter the number in the box.

122



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

#### Notes on Scoring

This response earns no credit (0 points) because it identifies the missing number incorrectly.

- The student may subtract incorrectly to find the missing value.

$$\begin{array}{r} 263 \\ -115 \\ \hline 158 \end{array} \quad \begin{array}{c} \xrightarrow{\quad} \\ \xleftarrow{\quad} \end{array} \quad \begin{array}{r} 158 \\ -36 \\ \hline 122 \end{array}$$

$$263 - 115 \neq 158$$

$$263 - 115 - 36 \neq 122$$

### Sample Response: 0 points

An equation is shown.

$$263 - 115 - 36 = \square$$

What is the missing number? Enter the number in the box.

116



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

#### Notes on Scoring

This response earns no credit (0 points) because it identifies the missing number incorrectly.

- The student may subtract incorrectly to find the missing value.

$$\begin{array}{r} 2563 \\ - 115 \\ \hline 142 \end{array} \quad \begin{array}{r} 1412 \\ - 36 \\ \hline 116 \end{array}$$

$$\begin{aligned} 263 - 115 &\neq 142 \\ 263 - 115 - 36 &\neq 116 \end{aligned}$$





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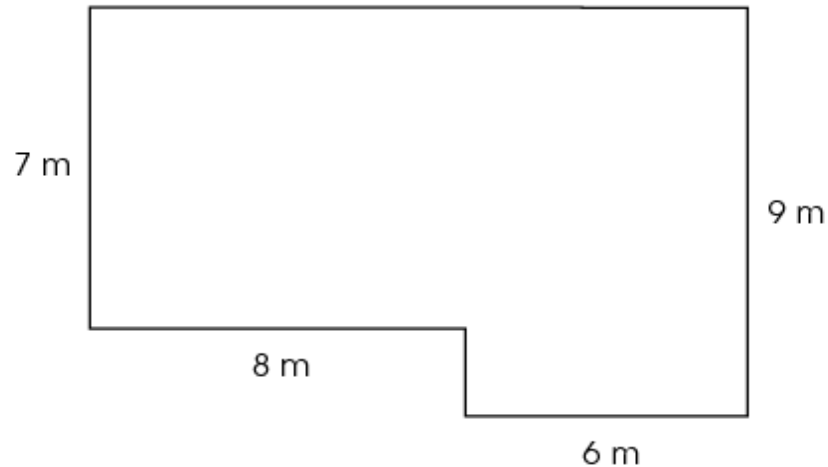
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**Question 4**

**Question and Scoring Guidelines**

## Question 4

A patio is shown.



What is the area, in square meters (sq m), of the patio?

- Ⓐ 46 square meters
- Ⓑ 56 square meters
- Ⓒ 110 square meters
- Ⓓ 126 square meters

**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.

d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. (3.MD.7d)

## Scoring Guidelines

Rationale for Option A: This is incorrect. The student may find the perimeter of the patio instead of the area of the patio.

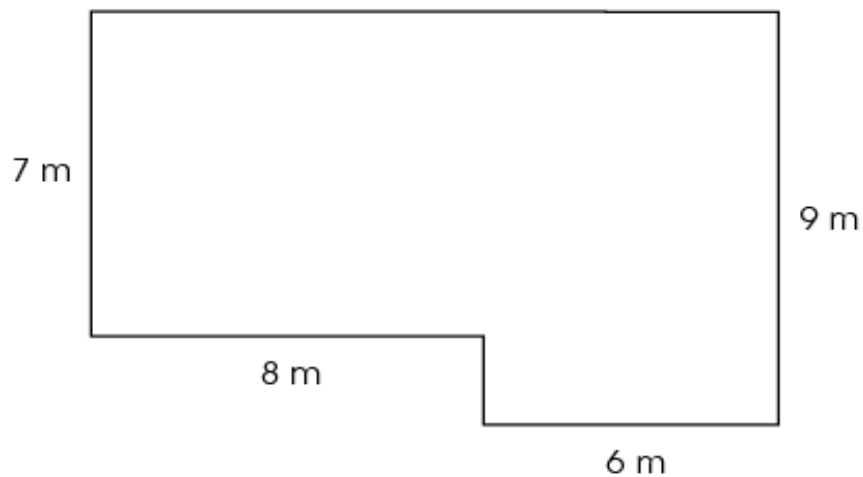
Rationale for Option B: This is incorrect. The student may find the area of only the 7-by-8 part of the patio.

Rationale for Option C: **Key** – The student correctly finds the combined area of the patio.

Rationale for Option D: This is incorrect. The student may forget to consider that the patio is an irregular shape and only find the area of the 9-by-(8 + 6) part of the patio.

### Sample Response: 1 point

A patio is shown.



What is the area, in square meters (sq m), of the patio?

- ☐ Ⓐ 46 square meters
- ☐ Ⓑ 56 square meters
- ☒ Ⓒ 110 square meters
- ☐ Ⓓ 126 square meters



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Math  
Spring 2017 Item Release**

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**Question 5**

**Question and Scoring Guidelines**

## Question 5

A group of 9 people is ordering pizza. Each person will get 2 slices of pizza. Each pizza has 6 slices. How many pizzas should the group order? Enter the number in the box.

← → ↶ ↷ ✕

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

**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

## Exemplar Response

- 3

## Other Correct Responses

- Any equivalent value

For this item, a full-credit response includes:

- The correct value (1 point).





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**Question 5**

**Sample Responses**

## Sample Response: 1 point

A group of 9 people is ordering pizza. Each person will get 2 slices of pizza. Each pizza has 6 slices.

How many pizzas should the group order? Enter the number in the box.

3

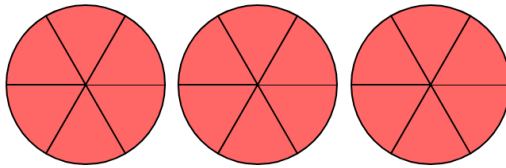


1	2	3
4	5	6
7	8	9
0	.	$\frac{\Box}{\Box}$

### Notes on Scoring

This response earns full credit (1 point) because it identifies the correct number of pizzas that the group should order.

- The student may draw pictures to develop and model his or her mathematical thinking.



$9 \times 2 = 18$  total pieces  
Each pizza has 6 total slices  
 $18 \div 6 = 3$  total pizzas

## Sample Response: 1 point

A group of 9 people is ordering pizza. Each person will get 2 slices of pizza. Each pizza has 6 slices.

How many pizzas should the group order? Enter the number in the box.

$\frac{3}{1}$

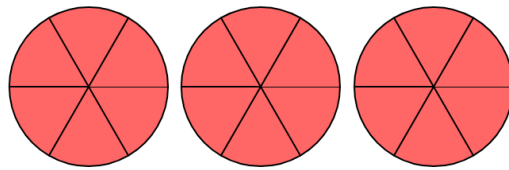


1	2	3
4	5	6
7	8	9
0	.	$\frac{\Box}{\Box}$

### Notes on Scoring

This response earns full credit (1 point) because it identifies the correct number of pizzas that the group should order.

- The student may draw pictures to develop and model his or her mathematical thinking.



$$9 \times 2 = 18 \text{ total pieces}$$

Each pizza has 6 total slices

$$\frac{18}{6} = \frac{18 \div 6}{6 \div 6} = \frac{3}{1} \text{ total pizzas}$$

### Sample Response: 0 points

A group of 9 people is ordering pizza. Each person will get 2 slices of pizza. Each pizza has 6 slices.

How many pizzas should the group order? Enter the number in the box.

108



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

#### Notes on Scoring

This response earns no credit (0 points) because it identifies the incorrect number of pizzas that the group should order.

- The student may multiply all three numbers together.

$$\begin{aligned} &9 \times 2 \times 6 \\ &= (9 \times 2) \times 6 \\ &18 \times 6 = 108 \end{aligned}$$

$$9 \times 2 \times 6 = 108$$

## Sample Response: 0 points

A group of 9 people is ordering pizza. Each person will get 2 slices of pizza. Each pizza has 6 slices.

How many pizzas should the group order? Enter the number in the box.

2



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

### Notes on Scoring

This response earns no credit (0 points) because it identifies the incorrect number of pizzas that the group should order.

- The student may multiply by 3 slices instead of 2 slices.

$$\begin{aligned} &6 \times 3 \div 9 \\ &= (6 \times 3) \div 9 \\ &18 \div 9 = 2 \end{aligned}$$

$$6 \times 3 \div 9 = 2$$



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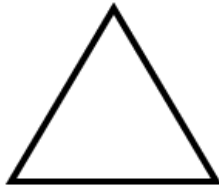
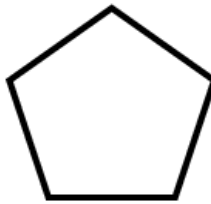
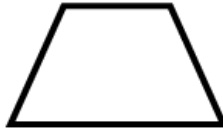
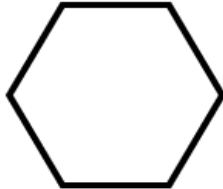
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**Question 6**

**Question and Scoring Guidelines**

## Question 6

Select the **two** shapes that are quadrilaterals.

☐☐☐☐☐

**Points Possible:** 1

**Content Cluster:** Reason with shapes and their attributes.

**Content Standard:** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. (3.G.1)



## Scoring Guidelines

Rationale for First Option: This is incorrect. The student may not understand what a quadrilateral is.

Rationale for Second Option: **Key** – The student identifies a 4-sided shape.

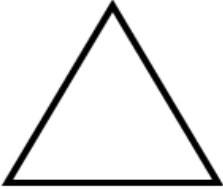
Rationale for Third Option: This is incorrect. The student may not understand what a quadrilateral is.

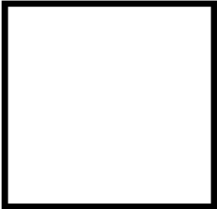
Rationale for Fourth Option: **Key** – The student identifies a 4-sided shape.

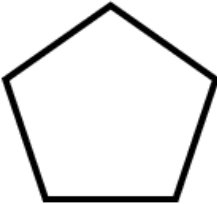
Rationale for Fifth Option: This is incorrect. The student may not understand what a quadrilateral is.


Sample Response: 1 point

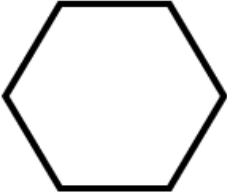
Select the **two** shapes that are quadrilaterals.

☐ 

☒ 

☐ 

☒ 

☐ 

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**Question 7**

**Question and Scoring Guidelines**

## Question 7

This question has two parts. First, answer part A. Then, answer part B.

A. Round 436 to the nearest 10. Enter the number in the first box.

B. Round 436 to the nearest 100. Enter the number in the second box.

A.

B.

←

→

↶

↷

✕

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

**Points Possible:** 2

**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

- A. 440  
B. 400

## Other Correct Responses

- A. Any equivalent value  
B. Any equivalent value

For this item, a full-credit response includes:

- The correct value in Part A (1 point)  
AND
- The correct value in Part B (1 point).



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**Question 7**

**Sample Responses**

### Sample Response: 2 points

This question has two parts. First, answer part A. Then, answer part B.

A. Round 436 to the nearest 10. Enter the number in the first box.

B. Round 436 to the nearest 100. Enter the number in the second box.

A. 440

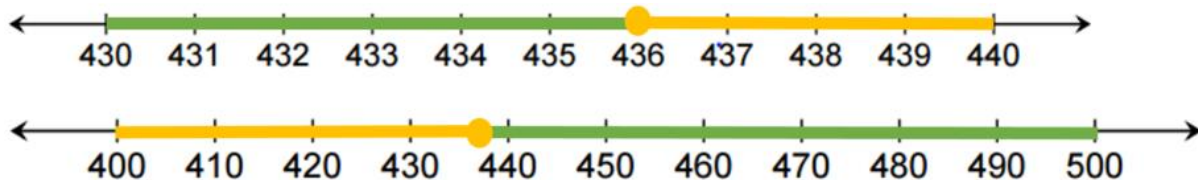
B. 400

A digital math input interface. At the top, there is a row of five circular navigation buttons: left arrow, right arrow, undo (curved left arrow), redo (curved right arrow), and clear (X). Below these buttons is a numeric keypad with a 4x3 grid of buttons. The first three rows contain digits 1-9. The fourth row contains 0, a decimal point (.), and a fraction template button (a box with a numerator line, a denominator line, and a fraction symbol). To the right of the keypad is a large, empty rectangular box for the user to enter their answer.

### Notes on Scoring

This response earns full credit (2 points) because it identifies the correct nearest 10 and nearest 100 that the number 436 rounds to.

- The student may create a number line to identify the nearest 10 and nearest 100.





### Sample Response: 1 point

This question has two parts. First, answer part A. Then, answer part B.

A. Round 436 to the nearest 10. Enter the number in the first box.

B. Round 436 to the nearest 100. Enter the number in the second box.

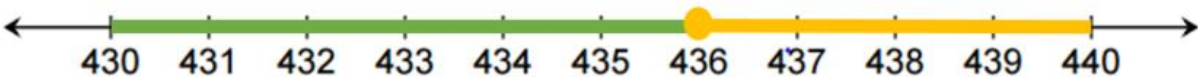
A. 440

B. 440

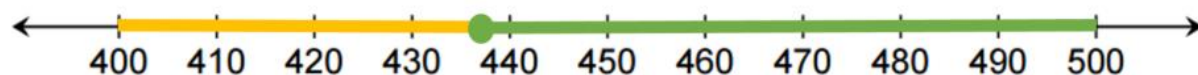
#### Notes on Scoring

This response earns partial credit (1 point) because it identifies the correct nearest 10 but an incorrect nearest 100 that the number 436 rounds to.

- The student may create a number line and recognize that 440 is closer to 436 than 430.



- The student may create a number line and incorrectly identify the nearest 100 that 436 rounds to.



### Sample Response: 1 point

This question has two parts. First, answer part A. Then, answer part B.

A. Round 436 to the nearest 10. Enter the number in the first box.

B. Round 436 to the nearest 100. Enter the number in the second box.

A. 440

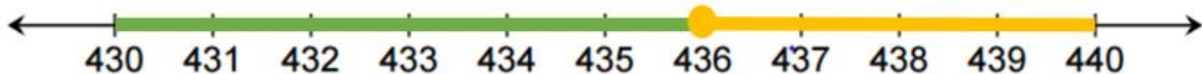
B. 500

A digital math input interface. At the top, there is a row of five circular navigation buttons: left arrow, right arrow, undo (curved arrow), redo (curved arrow), and clear (X). Below these buttons is a numeric keypad with a 4x3 grid of buttons. The buttons are labeled 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, a decimal point (.), and a fraction template icon (a box with a numerator line, a denominator line, and a fraction bar). The keypad is currently empty.

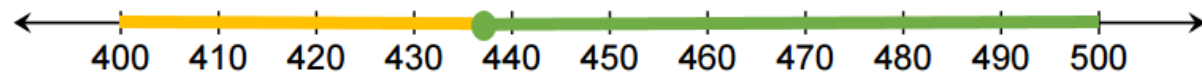
#### Notes on Scoring

This response earns partial credit (1 point) because it identifies the correct nearest 10 but an incorrect nearest 100 that the number 436 rounds to.

- The student may create a number line and recognize that 440 is closer to 436 than 430.



- The student may create a number line and incorrectly identify the nearest 100 that 436 rounds to.



### Sample Response: 0 points

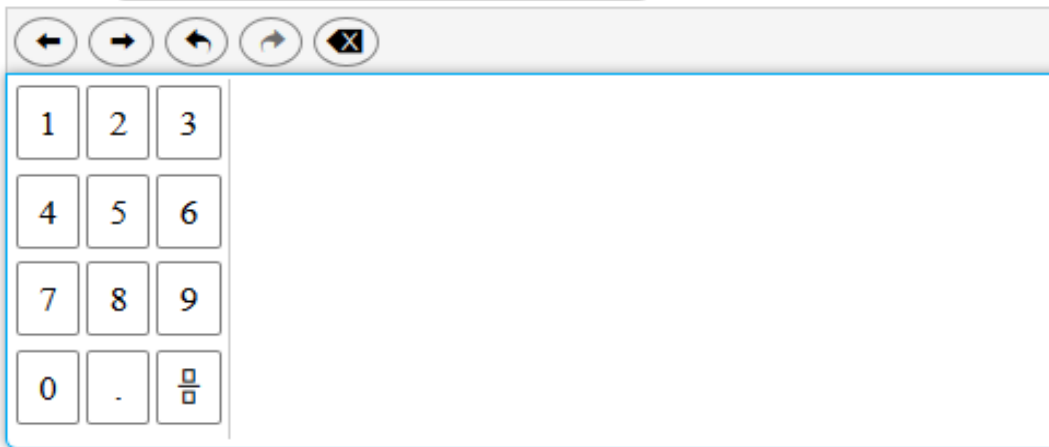
This question has two parts. First, answer part A. Then, answer part B.

A. Round 436 to the nearest 10. Enter the number in the first box.

B. Round 436 to the nearest 100. Enter the number in the second box.

A. 430

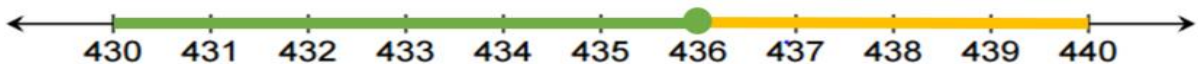
B. 500



#### Notes on Scoring

This response earns no credit (0 points) because it identifies an incorrect nearest 10 and an incorrect nearest 100 that the number 436 rounds to.

- The student may create a number line and incorrectly identify that 430 is closer to 436 than 440.
- The student may create a number line and incorrectly identify that 500 is closer to 436 than 400.



### Sample Response: 0 points

This question has two parts. First, answer part A. Then, answer part B.

A. Round 436 to the nearest 10. Enter the number in the first box.

B. Round 436 to the nearest 100. Enter the number in the second box.

A. 400

B. 0

#### Notes on Scoring

This response earns no credit (0 points) because it identifies an incorrect nearest 10 and an incorrect nearest 100 that the number 436 rounds to.

- The student may incorrectly think that he or she is supposed to round to the nearest 100 instead of to the nearest 10.
- The student may incorrectly think that he or she is supposed to round to the nearest 1000 instead of to the nearest 100.

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**Question 8**

**Question and Scoring Guidelines**

## Question 8

A girl makes 36 bracelets. She gives an equal number of bracelets to each of her 9 friends.

Which expression shows how many bracelets she gives to each friend?

- Ⓐ  $36 + 9$
- Ⓑ  $36 - 9$
- Ⓒ  $36 \times 9$
- Ⓓ  $36 \div 9$

**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  $56 \div 8$  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)

## Scoring Guidelines

Rationale for Option A: This is incorrect. The student may think that adding the values will provide the solution.

Rationale for Option B: This is incorrect. The student may think that subtracting the values will provide the solution.

Rationale for Option C: This is incorrect. The student may think that multiplying the values will provide the solution.

Rationale for Option D: **Key** – The student selects the correct expression using division. 36 divided by 9 gives each friend 4 bracelets.

### Sample Response: 1 point

A girl makes 36 bracelets. She gives an equal number of bracelets to each of her 9 friends.

Which expression shows how many bracelets she gives to each friend?

- ☐ A  $36 + 9$
- ☐ B  $36 - 9$
- ☐ C  $36 \times 9$
- ☒ D  $36 \div 9$





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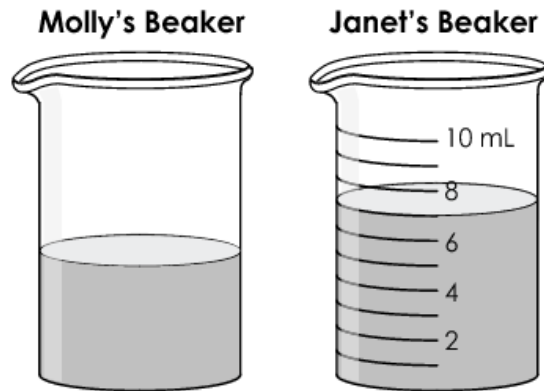
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**Question 9**

**Question and Scoring Guidelines**

## Question 9

Molly and Janet have beakers of the same size. The beakers are filled with different amounts of water as shown.



Janet's beaker contains 7 milliliters (mL) of water.

About how many milliliters of water does Molly's beaker contain?

- Ⓐ 2 mL
- Ⓑ 5 mL
- Ⓒ 7 mL
- Ⓓ 9 mL

**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: This is incorrect. The student may estimate too low.

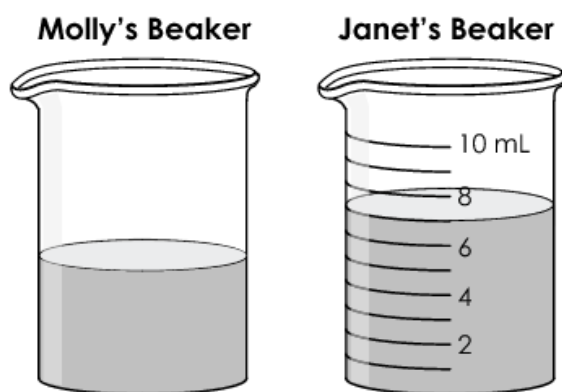
Rationale for Option B: **Key** – The student correctly estimates the amount of water.

Rationale for Option C: This is incorrect. The student may read the wrong beaker.

Rationale for Option D: This is incorrect. The student may not know how to read the scale.

### Sample Response: 1 point

Molly and Janet have beakers of the same size. The beakers are filled with different amounts of water as shown.



Janet's beaker contains 7 milliliters (mL) of water.

About how many milliliters of water does Molly's beaker contain?

- ☐ A 2 mL
- ☒ B 5 mL
- ☐ C 7 mL
- ☐ D 9 mL



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**Question 10**

**Question and Scoring Guidelines**

## Question 10

There are 9 students in the art club. The teacher gave each student 10 feathers.

What is the total number of feathers that the teacher gave to the students? Enter the number in the box.

← → ↶ ↷ ✕

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

**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.,  $9 \times 80$ ,  $5 \times 60$ ) 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).





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**Question 10**

**Sample Responses**

## Sample Response: 1 point

There are 9 students in the art club. The teacher gave each student 10 feathers.

What is the total number of feathers that the teacher gave to the students? Enter the number in the box.

90

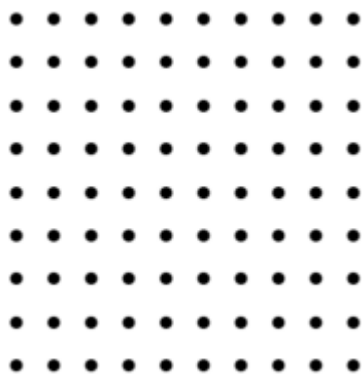
← → ↶ ↷ ✕

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

### Notes on Scoring

This response earns full credit (1 point) because it correctly identifies the total number of feathers that the teacher gives to the students.

- The student may create an array to develop and model his or her mathematical thinking.



9 groups of 10 feathers

$$9 \times 10 = 90$$

## Sample Response: 1 point

There are 9 students in the art club. The teacher gave each student 10 feathers.

What is the total number of feathers that the teacher gave to the students? Enter the number in the box.

90.0



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

### Notes on Scoring

This response earns full credit (1 point) because it correctly identifies the total number of feathers that the teacher gives to the students.

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

$$\begin{aligned} &10.0 + 10.0 + 10.0 + 10.0 + 10.0 + 10.0 + 10.0 + 10.0 + 10.0 \\ &= 9 \times 10.0 \\ &= 90.0 \end{aligned}$$

*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

There are 9 students in the art club. The teacher gave each student 10 feathers.

What is the total number of feathers that the teacher gave to the students? Enter the number in the box.

19



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

### Notes on Scoring

This response earns no credit (0 points) because it incorrectly identifies the total number of feathers that the teacher gives to the students.

- The student may use addition instead of multiplication.  
 $9 + 10 = 19$

## Sample Response: 0 points

There are 9 students in the art club. The teacher gave each student 10 feathers.

What is the total number of feathers that the teacher gave to the students? Enter the number in the box.

100



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

### Notes on Scoring

This response earns no credit (0 points) because it incorrectly identifies the total number of feathers that the teacher gives to the students.

- The student may think that the teacher will have 10 feathers after handing 10 feathers to each of the students.

$$\begin{aligned} &9 \times 10 + 10 \\ &= 90 + 10 \\ &= 100 \end{aligned}$$



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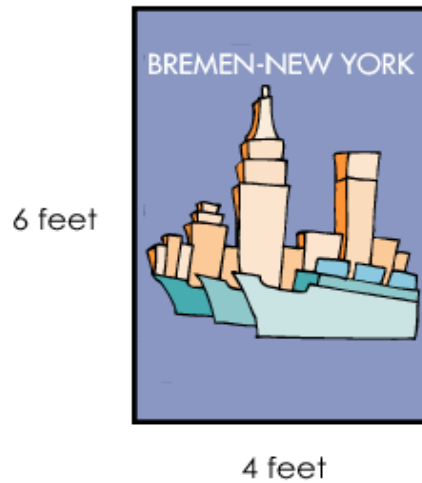
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**Question 11**

**Question and Scoring Guidelines**

## Question 11

An artist made a poster that is 6 feet tall and 4 feet wide.



What is the perimeter, in feet, of the poster? Enter the number in the box.

*feet*

Navigation icons: left arrow, right arrow, undo, redo, and delete (X).

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

**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

## Exemplar Response

- 20

## Other Correct Responses

- Any equivalent value

For this item, a full-credit response includes:

- The correct value (1 point).



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**Question 11**

**Sample Responses**

**Sample Response: 1 point**

An artist made a poster that is 6 feet tall and 4 feet wide.

6 feet



4 feet

What is the perimeter, in feet, of the poster? Enter the number in the box.

20

*feet*

← → ↶ ↷ ✕

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

**Notes on Scoring**

This response earns full credit (1 point) because it correctly identifies the perimeter of the poster.

- The student may use addition to find the perimeter.  
 $6 + 4 + 6 + 4 = 20$

## Sample Response: 1 point

An artist made a poster that is 6 feet tall and 4 feet wide.



What is the perimeter, in feet, of the poster? Enter the number in the box.

20.0

feet

Calculator interface showing a numeric keypad and a display area.

←	→	↶	↷	✖
1	2	3		
4	5	6		
7	8	9		
0	.	$\frac{\Box}{\Box}$		

### Notes on Scoring

This response earns full credit (1 point) because it correctly identifies the perimeter of the poster.

- The student may use addition to find the perimeter.  
 $6.0 + 4.0 + 6.0 + 4.0 = 20.0$

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

An artist made a poster that is 6 feet tall and 4 feet wide.

6 feet



4 feet

What is the perimeter, in feet, of the poster? Enter the number in the box.

24

feet

Calculator interface showing a numeric keypad with buttons for digits 1-9, 0, a decimal point, a fraction template, and navigation buttons (left, right, undo, redo, and a delete button).

#### Notes on Scoring

This response earns no credit (0 points) because it incorrectly identifies the perimeter of the poster.

- The student may think that he or she is supposed to find the area of the poster instead of the perimeter.

$$6 \times 4 = 24$$

$$6 + 4 + 6 + 4 \neq 24$$

### Sample Response: 0 points

An artist made a poster that is 6 feet tall and 4 feet wide.

6 feet



4 feet

What is the perimeter, in feet, of the poster? Enter the number in the box.

10

feet

← → ↶ ↷ ✕

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

#### Notes on Scoring

This response earns no credit (0 points) because it incorrectly identifies the perimeter of the poster.

- The student may be unable to identify the lengths of the unknown sides and only use the side lengths given to him or her in the image.

$$6 + 4 = 10$$

$$6 + 4 + 6 + 4 \neq 10$$





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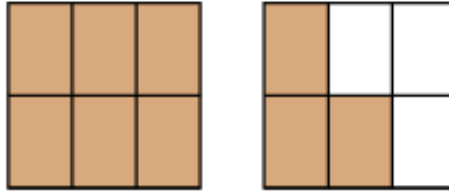
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**Question 12**

**Question and Scoring Guidelines**

## Question 12

A fraction model is shown.



A. What fraction represents the shaded area of the fraction model?

B. Explain how you found your answer.

Type your answer in the space given.

**Points Possible:** 2

**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

- The shaded area is  $\frac{9}{6}$  of the fraction model. I counted 9 shaded pieces and 6 pieces make a whole.

Score Point  
2 points

## Description

Response includes the following correct fraction or mixed number with a correct explanation:

**BLANK 1:**

a)  $1\frac{1}{2}$

**BLANK 2:**

b) I found one whole shaded and half of the other whole.

1 point

Response includes the correct value listed with an incorrect or missing explanation or an incorrect value and correct explanation.

0 points

The response does not meet the criteria required to earn one point. The response indicates inadequate or no understanding of the task and/or the idea or concept needed to answer the item. It may only repeat information given in the test item. The response may provide an incorrect solution/response and the provided supportive information may be irrelevant to the item, or possibly, no other information is shown. The student may have written on a different topic or written, "I don't know."



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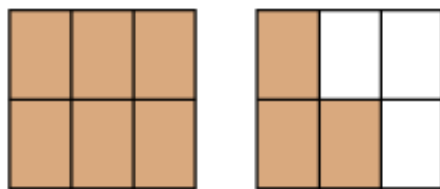
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**Question 12**

**Sample Responses**

### Sample Response: 2 points

A fraction model is shown.



- A. What fraction represents the shaded area of the fraction model?
- B. Explain how you found your answer.

Type your answer in the space given.

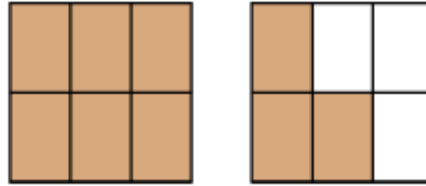
the fraction that represents the model shown is  $\frac{9}{12}$  because each whole is divided into sixths and one of the wholes are shaded and three other parts of the second whole are shaded.

#### Notes on Scoring

This response earns full credit (2 points) because it correctly identifies the fraction represented by the shaded area of the fraction model and provides a correct explanation.

### Sample Response: 2 points

A fraction model is shown.



- A. What fraction represents the shaded area of the fraction model?
- B. Explain how you found your answer.

Type your answer in the space given.

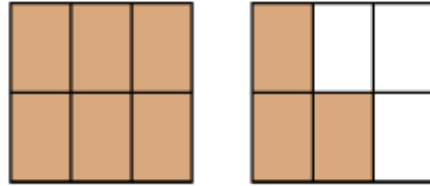
1 and a half because the first model shows that it is six sixths which is one whole and the second one is 3 sixths that is 1 and a half so the model represents 1 and a half. Also you could tell that it is 1 and a half because there are three squares shaded and there are three squares left that are not shaded.

#### Notes on Scoring

This response earns full credit (2 points) because it correctly identifies the fraction represented by the shaded area of the fraction model and provides a correct explanation.

### Sample Response: 2 points

A fraction model is shown.



A. What fraction represents the shaded area of the fraction model?

B. Explain how you found your answer.

Type your answer in the space given.

The fraction that represents the shaded object is  $9/6$ . I first counted how much it took a hole, which is 6. Then I counted how many were shaded. That was 9. The number is bigger than the denominator, so I went over the numerator and I got  $9/6$ .

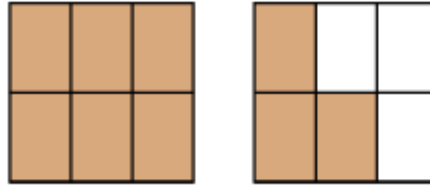
#### Notes on Scoring

This response earns full credit (2 points) because it correctly identifies the fraction represented by the shaded area of the fraction model and provides a correct explanation.



### Sample Response: 1 point

A fraction model is shown.



A. What fraction represents the shaded area of the fraction model?

B. Explain how you found your answer.

Type your answer in the space given.

First I counted all the squares on the first model> I counted 6. I know that demoninator is 6. Then I counted the shaded squares. I counted 8. That's the numurater the fraction is 8/6.

#### Notes on Scoring

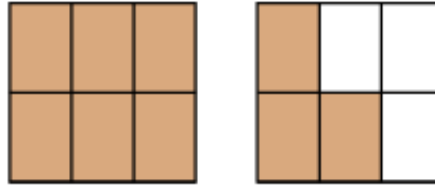
This response earns partial credit (1 point) because it provides a correct explanation but incorrectly identifies the fraction represented by the shaded area of the fraction model.

- The student identifies the numerator as 8 instead of 9 to represent the shaded area.

$$\frac{8}{6} \neq \frac{9}{6}$$

### Sample Response: 1 point

A fraction model is shown.



- A. What fraction represents the shaded area of the fraction model?
- B. Explain how you found your answer.

Type your answer in the space given.

it is a big 1 and  $\frac{6}{3}$  i found because there is one hole box which makes it a big 1 and the other box has 3 shaded in so 3 is are numarater and 6 is are donamanater.

#### Notes on Scoring

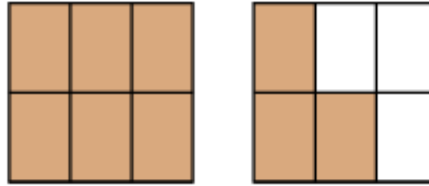
This response earns partial credit (1 point) because it provides a correct explanation but incorrectly identifies the fraction represented by the shaded area of the fraction model.

- The student incorrectly identifies the fractional value of the shaded area.

$$1\frac{6}{3} \neq 1\frac{3}{6}$$

**Sample Response: 1 point**

A fraction model is shown.



- A. What fraction represents the shaded area of the fraction model?
- B. Explain how you found your answer.

Type your answer in the space given.

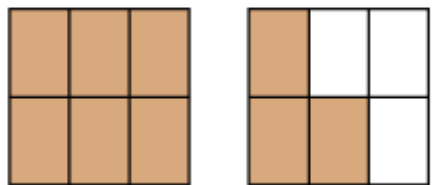
that is a hol one and a 3 over 6

**Notes on Scoring**

This response earns partial credit (1 point) because it correctly identifies the fraction represented by the shaded area of the fraction model but omits an explanation.

**Sample Response: 1 point**

A fraction model is shown.



A. What fraction represents the shaded area of the fraction model?

B. Explain how you found your answer.

Type your answer in the space given.

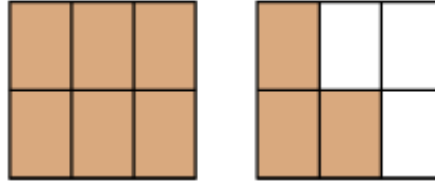
The fraction that represents the shaded area is  $\frac{6}{6}$  and  $\frac{3}{6}$

**Notes on Scoring**

This response earns partial credit (1 point) because it correctly identifies the fraction represented by the shaded area of the fraction model but omits an explanation.

## Sample Response: 0 points

A fraction model is shown.



A. What fraction represents the shaded area of the fraction model?

B. Explain how you found your answer.

Type your answer in the space given.

9/12 are shaded I found my answer by looking at the picture. I saw 9/12 where shaded.

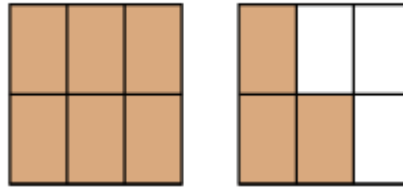
### Notes on Scoring

This response earns no credit (0 points) because it incorrectly identifies the fraction represented by the shaded area of the fraction model and provides an incorrect explanation.

- The student may think that the two shapes represent one whole instead of two wholes.

## Sample Response: 0 points

A fraction model is shown.



A. What fraction represents the shaded area of the fraction model?

B. Explain how you found your answer.

Type your answer in the space given.

the one that has 3 blanks |

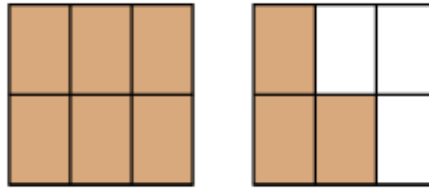
### Notes on Scoring

This response earns no credit (0 points) because it incorrectly identifies the fraction represented by the shaded area of the fraction model and provides an incorrect explanation.

- The student may think that the fraction is supposed to represent the unshaded area of the fraction model and provides no other information.

### Sample Response: 0 points

A fraction model is shown.



- A. What fraction represents the shaded area of the fraction model?
- B. Explain how you found your answer.

Type your answer in the space given.

the first one because the second one needs one more at the bottom and two more at the top for it to be represented

#### Notes on Scoring

This response earns no credit (0 points) because it incorrectly identifies the fraction represented by the shaded area of the fraction model and provides an incorrect explanation.

- The student provides supportive information irrelevant to the item.





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**Question 13**

**Question and Scoring Guidelines**

## Question 13

Bryson has 40 books. He divides them into 5 stacks with an equal number of books in each stack.

He uses the division equation  $40 \div 5 = \square$  to find how many books are in each stack.

Enter a multiplication equation that shows the number of books in each stack.

←

→

↶

↷

✖

1	2	3	+	-	×	÷
4	5	6	<	=	>	
7	8	9	( )			
0	.	$\frac{\Box}{\Box}$				

**Points Possible:** 1

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

**Content Standard:** Understand division as an unknown-factor problem. *For example, find  $32 \div 8$  by finding the number that makes 32 when multiplied by 8. (3.OA.6)*

# Scoring Guidelines

## Exemplar Response

- $5 \times 8 = 40$

## Other Correct Responses

- $5 \times 8 = 40, 40 = 8 \times 5, 40 = 5 \times 8$

For this item, a full-credit response includes:

- A correct multiplication equation (1 point).



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**Question 13**

**Sample Responses**

### Sample Response: 1 point

Bryson has 40 books. He divides them into 5 stacks with an equal number of books in each stack.

He uses the division equation  $40 \div 5 = \square$  to find how many books are in each stack.

Enter a multiplication equation that shows the number of books in each stack.

$$5 \times 8 = 40$$



1	2	3	+	-	$\times$	$\div$
4	5	6	<	=	>	
7	8	9	( )			
0	.	$\frac{\Box}{\Box}$				

#### Notes on Scoring

This response earns full credit (1 point) because it provides a correct multiplication equation that shows the number of books in each stack.

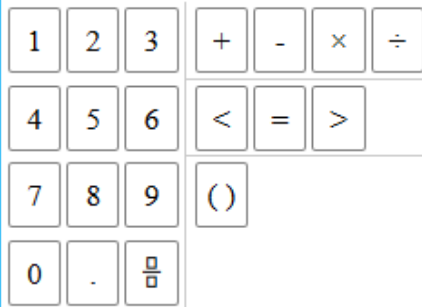
### Sample Response: 1 point

Bryson has 40 books. He divides them into 5 stacks with an equal number of books in each stack.

He uses the division equation  $40 \div 5 = \square$  to find how many books are in each stack.

Enter a multiplication equation that shows the number of books in each stack.

$$8 \times 5 = 40$$



#### Notes on Scoring

This response earns full credit (1 point) because it provides a correct multiplication equation that shows the number of books in each stack.

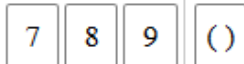
## Sample Response: 0 points

Bryson has 40 books. He divides them into 5 stacks with an equal number of books in each stack.

He uses the division equation  $40 \div 5 = \square$  to find how many books are in each stack.

Enter a multiplication equation that shows the number of books in each stack.

8



### Notes on Scoring

This response earns no credit (0 points) because it does not provide a correct multiplication equation to show the number of books in each stack.

- The student may think that he or she is supposed to provide the value of the unknown number in the equation.  
 $40 \div 5 = 8$



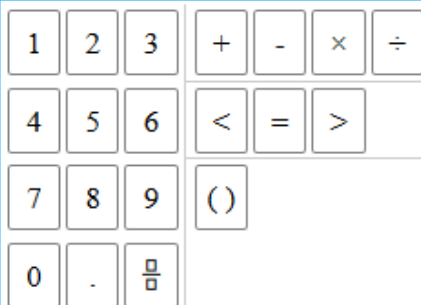
### Sample Response: 0 points

Bryson has 40 books. He divides them into 5 stacks with an equal number of books in each stack.

He uses the division equation  $40 \div 5 = \square$  to find how many books are in each stack.

Enter a multiplication equation that shows the number of books in each stack.

$$40 \times 5 = 200$$



#### Notes on Scoring

This response earns no credit (0 points) because it provides an incorrect multiplication equation to show the number of books in each stack.

- The student may think that he or she is supposed to re-write the division equation as a multiplication equation using the same numbers.



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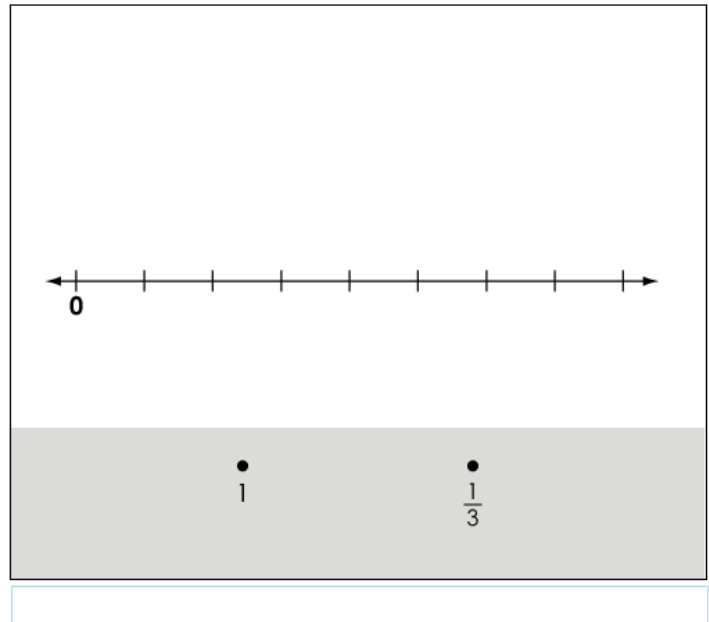
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**Question 14**

**Question and Scoring Guidelines**

## Question 14

Move the two points to the number line to correctly plot the fraction  $\frac{1}{3}$ .



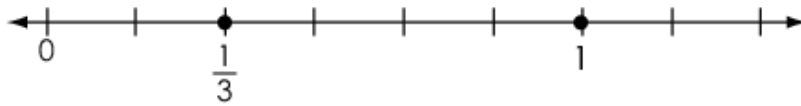
**Points Possible:** 2

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

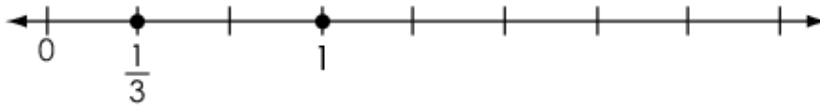
**Content Standard:** Understand a fraction as a number on the number line; represent fractions on a number line diagram.  
b. Represent a fraction  $\frac{a}{b}$  on a number line diagram by marking off  $a$  lengths  $\frac{1}{b}$  from 0. Recognize that the resulting interval has size  $\frac{a}{b}$  and that its endpoint locates the number  $\frac{1}{b}$  on the number line. (3.NF.2b)

# Scoring Guidelines

## Exemplar Response



## Other Correct Responses



For this item, a full-credit response includes:

- Correctly placing the first point in a position that partitions the number line into thirds or equivalent (1 point);  
AND
- Correctly modeling the fraction (1 point).



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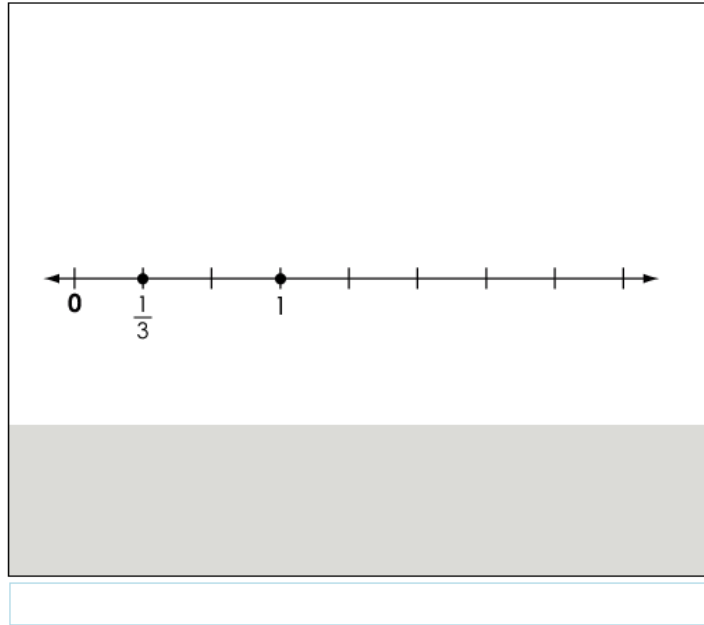
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**Question 14**

**Sample Responses**

## Sample Response: 2 points

Move the two points to the number line to correctly plot the fraction  $\frac{1}{3}$ .



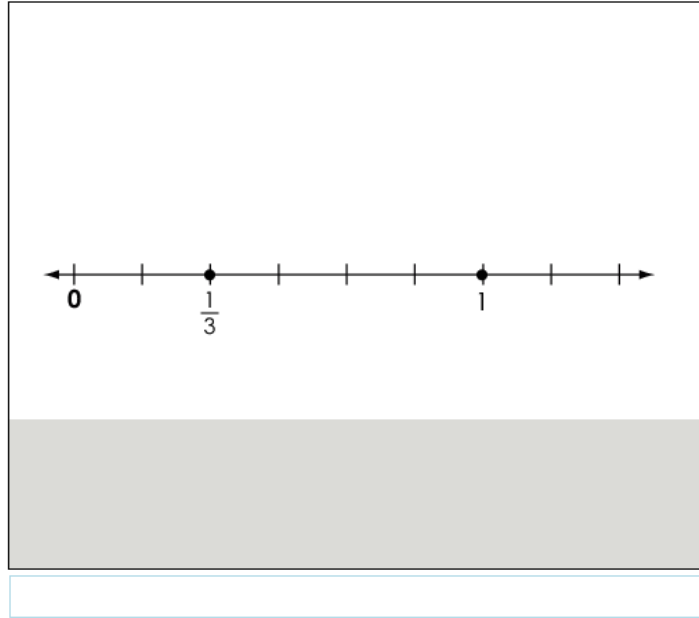
### Notes on Scoring

This response earns full credit (2 points) because it moves two points onto a number line to correctly plot the fraction  $\frac{1}{3}$  and the whole number 1.



## Sample Response: 2 points

Move the two points to the number line to correctly plot the fraction  $\frac{1}{3}$ .

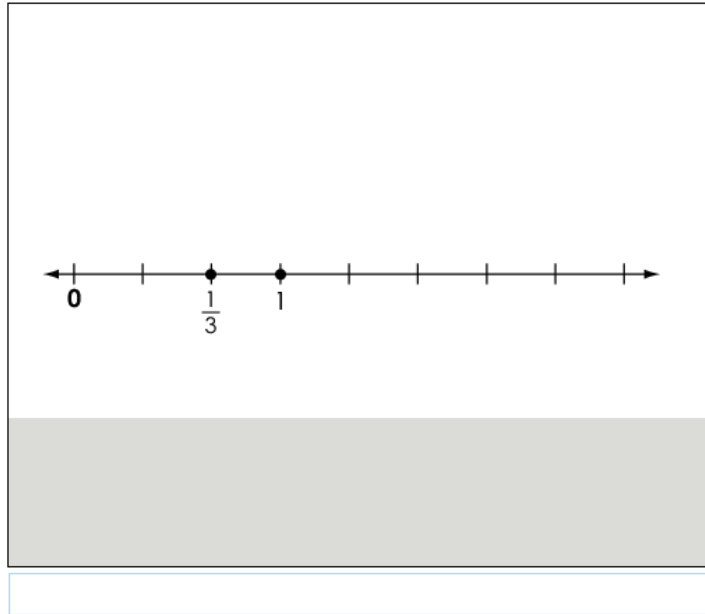


### Notes on Scoring

This response earns full credit (2 points) because it moves two points onto a number line to correctly plot the fraction  $\frac{1}{3}$  and the whole number 1.

## Sample Response: 1 point

Move the two points to the number line to correctly plot the fraction  $\frac{1}{3}$ .



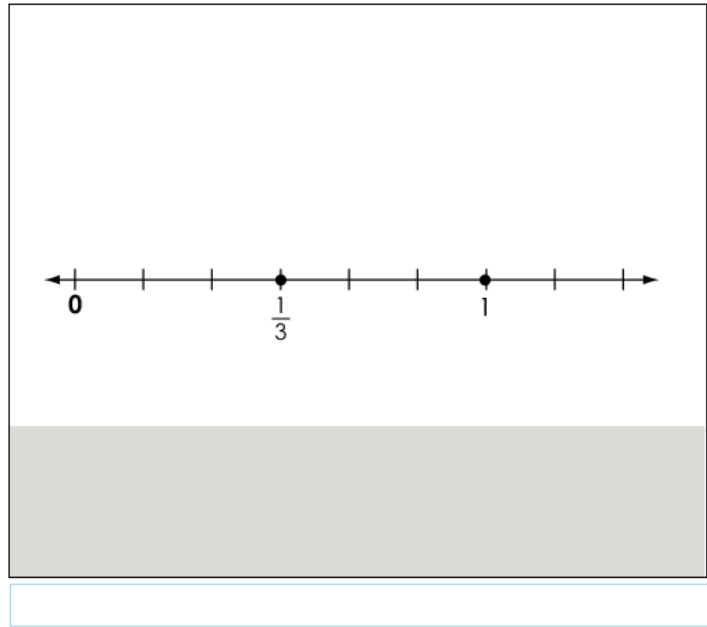
### Notes on Scoring

This response earns partial credit (1 point) because it moves two points onto a number line to correctly plot the whole number 1, but the response incorrectly plots the fraction  $\frac{1}{3}$  based on its relationship to 0 and 1.

- The student may misidentify the scale he or she chooses based on his or her placement of the whole number 1.

## Sample Response: 1 point

Move the two points to the number line to correctly plot the fraction  $\frac{1}{3}$ .



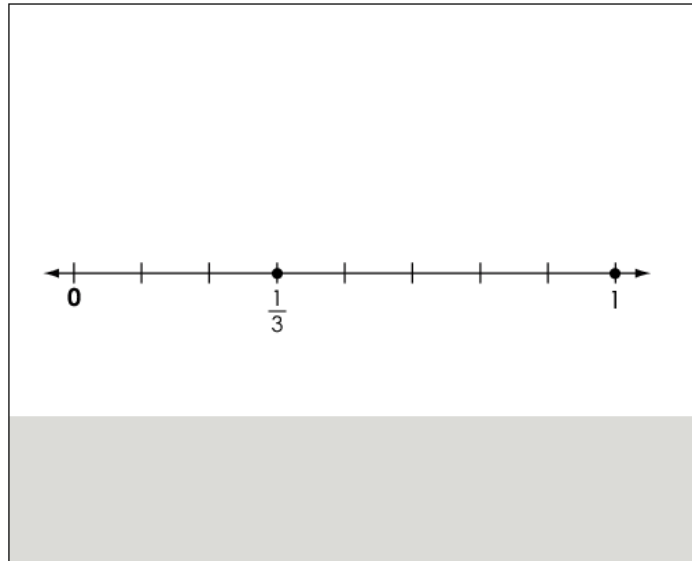
### Notes on Scoring

This response earns partial credit (1 point) because it moves two points onto a number line to correctly plot the whole number 1, but the response incorrectly plots the fraction  $\frac{1}{3}$  based on its relationship to 0 and 1.

- The student may misidentify the scale he or she chooses based on his or her placement of the whole number 1.

## Sample Response: 0 points

Move the two points to the number line to correctly plot the fraction  $\frac{1}{3}$ .



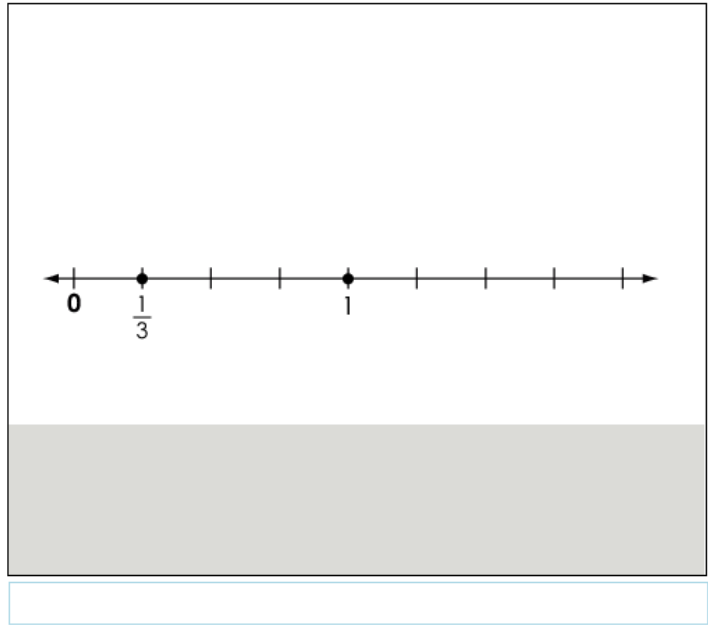
### Notes on Scoring

This response earns no credit (0 points) because it moves two points onto a number line that incorrectly plot the fraction  $\frac{1}{3}$  and the whole number 1.

- The student may miscount the tick marks on the number line by starting his or her count at the location of the 0 on the number line rather than at the first tick mark after the 0.

## Sample Response: 0 points

Move the two points to the number line to correctly plot the fraction  $\frac{1}{3}$ .



### Notes on Scoring

This response earns no credit (0 points) because it moves two points onto a number line that incorrectly plot the fraction  $\frac{1}{3}$  and the whole number 1.

- The student may miscount the tick marks on the number line by starting his or her count at the location of the  $\frac{1}{3}$  on the number line, and then counting three tick marks after  $\frac{1}{3}$  to place the whole number 1 on the number line.



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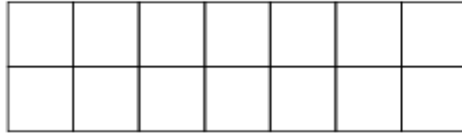
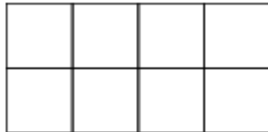
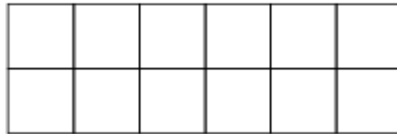
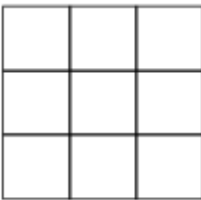
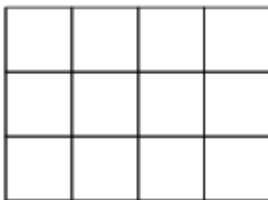
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**Question 15**

**Question and Scoring Guidelines**

## Question 15

Select the **two** rectangles that have an area of 12 square units.

☐☐☐☐☐

**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

Rationale for First Option: This is incorrect. The student may not count the number of units correctly.

Rationale for Second Option: This is incorrect. The student may count a row twice, or select a rectangle with a perimeter of 12 units.

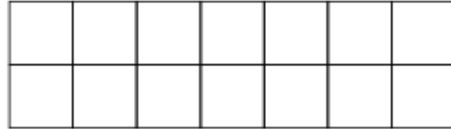
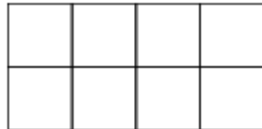
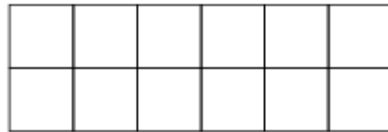
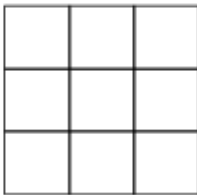
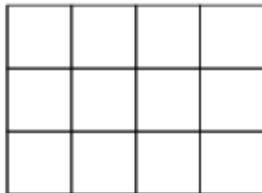
Rationale for Third Option: **Key** – The student correctly selects a rectangle with an area of 12 square units.

Rationale for Fourth Option: This is incorrect. The student may select a rectangle with a perimeter of 12 units.

Rationale for Fifth Option: **Key** – The student correctly selects a rectangle with an area of 12 square units.

Sample Response: 1 point

Select the **two** rectangles that have an area of 12 square units.

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**Question 16**

**Question and Scoring Guidelines**

## Question 16

Enter the unknown value in each equation.

6	×	<input type="text"/>	=	42
<input type="text"/>	÷	4	=	9
15	=	<input type="text"/>	×	3
7	=	14	÷	<input type="text"/>

**Points Possible:** 2

**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  $8 \times \square = 48$ ,  $5 = \square \div 3$ ,  $6 \times 6 = \square$ . (3.OA.4)*

## Scoring Guidelines

### Exemplar Response

6	×	7	=	42
36	÷	4	=	9
15	=	5	×	3
7	=	14	÷	2

### Other Correct Responses

- N/A

For this item, a full-credit response includes:

- At least two correctly completed equations (1 point);  
AND
- Four correctly completed equations (1 point).



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**Question 16**

**Sample Responses**

### Sample Response: 2 points

Enter the unknown value in each equation.

6	×	7	=	42
36	÷	4	=	9
15	=	5	×	3
7	=	14	÷	2

#### Notes on Scoring

This response earns full credit (2 points) because it correctly identifies the missing value in each equation.



### Sample Response: 2 points

Enter the unknown value in each equation.

6	×	7.0	=	42
36.0	÷	4	=	9
15	=	5.0	×	3
7	=	14	÷	2.0

#### Notes on Scoring

This response earns full credit (2 points) because it correctly identifies the missing value in each equation.

*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

Enter the unknown value in each equation.

6	×	7	=	42
45	÷	4	=	9
15	=	5	×	3
7	=	14	÷	2

#### Notes on Scoring

This response earns partial credit (1 point) because it correctly identifies the missing value in at least two equations.

- The student correctly identifies the value in three of the equations.  
 $6 \times 7 = 42$   
 $15 = 5 \times 3$   
 $7 = 14 \div 2$
- The student incorrectly identifies the value in one of the equations.  
 $45 \div 4 \neq 9$

### Sample Response: 1 point

Enter the unknown value in each equation.

6	×	8	=	42
36	÷	4	=	9
15	=	5	×	3
7	=	14	÷	2

#### Notes on Scoring

This response earns partial credit (1 point) because it correctly identifies the missing value in at least two equations.

- The student correctly identifies the value in three of the equations.  
 $36 \div 4 = 9$   
 $15 = 5 \times 3$   
 $7 = 14 \div 2$
- The student incorrectly identifies the value in one of the equations.  
 $6 \times 8 \neq 42$

## Sample Response: 0 points

Enter the unknown value in each equation.

6	×	7	=	42
5	÷	4	=	9
15	=	12	×	3
7	=	14	÷	21

### Notes on Scoring

This response earns no credit (0 points) because it incorrectly identifies the missing value in at least two equations.

- The student correctly identifies the value in one of the equations.  
 $6 \times 7 = 42$
- The student incorrectly identifies the value in three of the equations.  
 $5 \div 4 \neq 9$   
 $15 \neq 12 \times 3$   
 $7 \neq 14 \div 21$

### Sample Response: 0 points

Enter the unknown value in each equation.

6	×	36	=	42
13	÷	4	=	9
15	=	12	×	3
7	=	14	÷	21

#### Notes on Scoring

This response earns no credit (0 points) because it incorrectly identifies the missing value in at least two equations.

- The student incorrectly identifies the value in all four of the equations.  
 $6 \times 36 \neq 42$   
 $13 \div 4 \neq 9$   
 $15 \neq 12 \times 3$   
 $7 \neq 14 \div 21$

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