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Ohio's State Tests

ITEM RELEASE

SPRING 2016

GRADE 3 MATHEMATICS

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Grade 3 Math
Spring 2016 Item Release
Content Summary and Answer Key

Question No.	Item Type	Content Cluster	Content Standard	Answer Key	Points
1	Multiple Choice	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)*	D	1 point
2	Equation 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)*	---	1 point
3	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

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Content Summary and Answer Key

Question No.	Item Type	Content Cluster	Content Standard	Answer Key	Points
4	Equation Item	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)*	---	1 point
5	Multiple Choice	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)*	A	1 point

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Content Summary and Answer Key

Question No.	Item Type	Content Cluster	Content Standard	Answer Key	Points
6	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. **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. *(3.MD.7b)*	D	1 point
7	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

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Question No.	Item Type	Content Cluster	Content Standard	Answer Key	Points
8	Equation Item	Develop understanding of fractions as numbers.	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. **d.** Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. *(3.NF.3d)*	---	1 point
9	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
10	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

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Question 1

Question and Scoring Guidelines
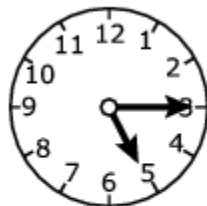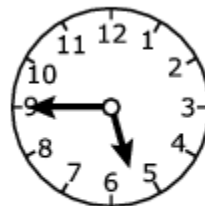
Question 1

Which clock reads 5:45?

Ⓐ

Ⓒ

Ⓑ

Ⓓ

Points Possible: 1

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)*

2

Scoring Guidelines

Rationale for Option A: This is incorrect. The student may have disregarded the minutes portion of the time.

Rationale for Option B: This is incorrect. The student may have chosen the time 15 minutes after the hour instead of 15 minutes before the hour.

Rationale for Option C: This is incorrect. The student may have mistaken 45 minutes for half an hour.
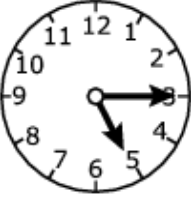
Rationale for Option D: **Key** – The student correctly determined the time.
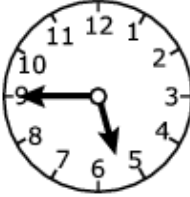
Sample Response: 1 point

Which clock reads 5:45?

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Question 2

Question and Scoring Guidelines

Question 2

Martin arrived at the library at 3:16 p.m. He left the library at 3:42 p.m.

How many minutes did Martin spend at the library?

1	2	3
4	5	6
7	8	9
0	.	⧄

Points Possible: 1

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

- 26

Other Correct Responses

- N/A

For this item, a full-credit response includes:
- The correct value (1 point).

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Question 2

Sample Responses

Sample Response: 1 point

Martin arrived at the library at 3:16 p.m. He left the library at 3:42 p.m.

How many minutes did Martin spend at the library?

26

1	2	3
4	5	6
7	8	9
0	.	□/□

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified the elapsed time Martin spent at the library.

- The student may have solved the problem by using subtraction.

  42 – 16 = 26 minutes

- The student may have solved the problem by adding on to 16 until he or she reached 42.

  3:16 p.m. **+ 4** minutes = 3:20 p.m.
  3:20 p.m. **+ 10** minutes = 3:30 p.m.
  3:30 p.m. **+ 10** minutes = 3:40 p.m.
  3:40 p.m. **+ 2** minutes = 3:42 p.m.
  4 + 10 + 10 + 2 = 26 minutes

Sample Response: 0 points

Martin arrived at the library at 3:16 p.m. He left the library at 3:42 p.m.

How many minutes did Martin spend at the library?

25

1	2	3
4	5	6
7	8	9
0	.	□/□

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the elapsed time Martin spent at the library.

- The student may have made an error using subtraction.
  42 – 16 ≠ 25 minutes
- The student may have made an error adding on to 16 until he or she reached 42.
  3:16 p.m. **+ 4** minutes = 3:20 p.m.
  3:20 p.m. **+ 10** minutes = 3:30 p.m.
  3:30 p.m. **+ 10** minutes = 3:40 p.m.
  3:40 p.m. **+ 2** minutes = 3:42 p.m.
  4 + 10 + 10 + 2 ≠ 25 minutes

Sample Response: 0 points

Martin arrived at the library at 3:16 p.m. He left the library at 3:42 p.m.

How many minutes did Martin spend at the library?

18

1	2	3
4	5	6
7	8	9
0	.	□/□

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the elapsed time Martin spent at the library.

- The student may have made an error using subtraction.

  42 – 16 ≠ 18 minutes
- The student may have made an error adding on to 16 until he or she reached 42.

  3:16 p.m. **+ 4** minutes = 3:20 p.m.

  3:20 p.m. **+ 10** minutes = 3:30 p.m.

  3:30 p.m. **+ 10** minutes = 3:40 p.m.

  3:40 p.m. **+ 2** minutes = 3:42 p.m.

  4 + 10 + 10 + 2 ≠ 18 minutes
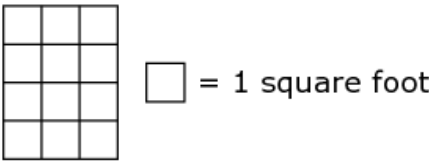
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Question 3

Question and Scoring Guidelines

Question 3

The diagram shows the floor of Graham's closet.

 = 1 square foot

What is the area, in square feet, of the floor of Graham's closet?

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

- 12

Other Correct Responses

- N/A

For this item, a full-credit response includes:
- The correct response (1 point).

12
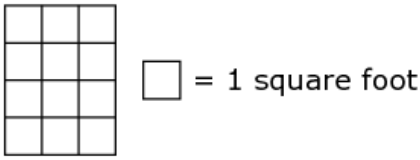
Grade 3
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Question 3

Sample Responses

Sample Response: 1 point

The diagram shows the floor of Graham's closet.

$\square$ = 1 square foot

What is the area, in square feet, of the floor of Graham's closet?

12

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

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified the area of the floor in Graham's closet.

- The student may have counted the 4 rows of 3 tiles.
  3 + 3 + 3 + 3 = 12 square feet
- The student may have counted the 3 columns of 4 tiles.
  4 + 4 + 4 = 12 square feet

14

Sample Response: 0 points

The diagram shows the floor of Graham's closet.

☐ = 1 square foot

What is the area, in square feet, of the floor of Graham's closet?

13

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

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the area of the floor in Graham's closet.

- The student may have counted the 4 rows of 3 tiles and then added the square tile shown in the key to his or her total.
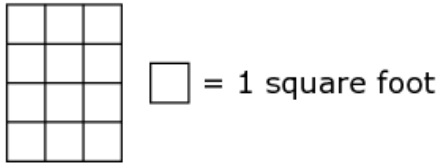
    3 + 3 + 3 + 3 + 1 = 13 square feet
- The student may have counted the 3 columns of 4 tiles and then added the square tile shown in the key to his or her total.

    4 + 4 + 4 + 1 = 13 square feet

Sample Response: 0 points

The diagram shows the floor of Graham's closet.

□ = 1 square foot

What is the area, in square feet, of the floor of Graham's closet?

8

← → ↰ ↱ ⌫

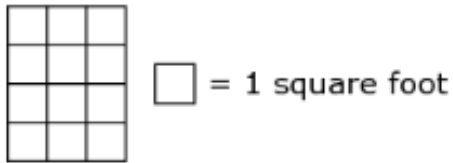| 1 | 2 | 3 |
4	5	6
7	8	9
0	.	▭/▭

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the area of the floor in Graham's closet.

- The student may have counted only 2 columns of 4 tiles.

    4 + 4 = 8 square feet

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Question 4

Question and Scoring Guidelines

Question 4

Elizabeth has 4 rocks of equal mass. They have a total mass of 48 grams.

What is the mass of each rock in grams?

1	2	3
4	5	6
7	8	9
0	.	🔲

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

Exemplar Response

- 12

Other Correct Responses

- Any equivalent value.

For this item, a full-credit response includes:

- A correct value (1 point).

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Math
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Question 4

Sample Responses

Sample Response: 1 point

Elizabeth has 4 rocks of equal mass. They have a total mass of 48 grams.

What is the mass of each rock in grams?

12

1	2	3
4	5	6
7	8	9
0	.	□/□

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified the mass of each rock.

- The student may have set up an equation for the unknown group size and solved the problem using division.

$$4 \times \square = 48 \text{ grams}$$
$$48 \div 4 = 12 \text{ grams}$$

Sample Response: 0 points

Elizabeth has 4 rocks of equal mass. They have a total mass of 48 grams.

What is the mass of each rock in grams?

16

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

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the mass of each rock.

- The student may have set up an equation for the unknown group size using groups of 3 instead of 4 and solved the problem using division.

$3 × \square = 48$ grams

$48 ÷ 3 = 16$ grams

Sample Response: 0 points

Elizabeth has 4 rocks of equal mass. They have a total mass of 48 grams.

What is the mass of each rock in grams?

9

1	2	3
4	5	6
7	8	9
0	.	▯/▯

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the mass of each rock.

- The student may have set up an equation for the unknown group size using a total of 36 grams instead of 48 grams.

    $4 \times \square = 36$ grams

    $36 \div 4 = 9$ grams

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Question 5

Question and Scoring Guidelines

Question 5

An expression is shown.

$30 \div 3$

What is the value of the expression?

Ⓐ 10

Ⓑ 27

Ⓒ 33

Ⓓ 90

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

Rationale for Option A: **Key** – The student correctly divided 30 and 3.

Rationale for Option B: This is incorrect. The student may have subtracted 30 and 3.

Rationale for Option C: This is incorrect. The student may have added 30 and 3.

Rationale for Option D: This is incorrect. The student may have multiplied 30 and 3.

Sample Response: 1 point

An expression is shown.

$30 \div 3$

What is the value of the expression?

- ● 10
- Ⓑ 27
- Ⓒ 33
- Ⓓ 90

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Question 6

Question and Scoring Guidelines

Question 6

The plan of a playground is shown.

4 yards [rectangle] 11 yards

What is the area of the playground?

Ⓐ 15 square yards

Ⓑ 22 square yards

Ⓒ 30 square yards

Ⓓ 44 square yards

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.
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. *(3.MD.7b)*

Scoring Guidelines

Rationale for Option A: This is incorrect. The student may have added the two numbers in the labels of the figure.

Rationale for Option B: This is incorrect. The student may have used the formula for the area of a triangle instead of the formula for the area of a rectangle to find the area of the playground.

Rationale for Option C: This is incorrect. The student may have found the perimeter of the playground instead of the area.

Rationale for Option D: **Key** – The student correctly multiplied 4 yards and 11 yards to get an area of 44 square yards.

Sample Response: 1 point

The plan of a playground is shown.

4 yards

11 yards

What is the area of the playground?

Ⓐ 15 square yards

Ⓑ 22 square yards

Ⓒ 30 square yards

● 44 square yards

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Question 7

Question and Scoring Guidelines

Question 7

Jacob has 18 DVDs and 3 shelves to put them on. He puts the same number of DVDs on each shelf.

How many DVDs are on each shelf?

1	2	3
4	5	6
7	8	9
0	.	▯/▯

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

- 6

Other Correct Responses

- Any equivalent value.

For this item, a full-credit response includes:

- The correct value (1 point).

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Math
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Question 7

Sample Responses

Sample Response: 1 point

Jacob has 18 DVDs and 3 shelves to put them on. He puts the same number of DVDs on each shelf.

How many DVDs are on each shelf?

6

| ← | → | ↶ | ↷ | ⊠ |

1	2	3
4	5	6
7	8	9
0	.	⬚

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified the number of DVDs on each shelf.
- The student may have set up an equation for the unknown group size and solved the problem using division.

$$3 × □ = 18 \text{ DVDs}$$
$$18 ÷ 3 = 6 \text{ DVDs}$$

Sample Response: 0 points

Jacob has 18 DVDs and 3 shelves to put them on. He puts the same number of DVDs on each shelf.

How many DVDs are on each shelf?

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 the student did not correctly identify the number of DVDs on each shelf.

- The student may have set up an equation for the unknown group size and solved the problem using division of 12 DVDs instead of 18 DVDs.

$$3 \times \square = 12 \text{ DVDs}$$
$$12 \div 3 = 4 \text{ DVDs}$$

Sample Response: 0 points

Jacob has 18 DVDs and 3 shelves to put them on. He puts the same number of DVDs on each shelf.

How many DVDs are on each shelf?

8

| ← | → | ↶ | ↷ | ⌫ |

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

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the number of DVDs on each shelf.

- The student may have set up an equation for the unknown group size and solved the problem using division of 24 DVDs instead of 18 DVDs.

    3 × □ = 24 DVDs

    24 ÷ 3 = 8 DVDs

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Question 8

Question and Scoring Guidelines

Question 8

Create a fraction that is greater than $\frac{2}{8}$ and less than $\frac{2}{4}$.

Points Possible: 1

Content Cluster: Develop understanding of fractions as numbers.

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

Scoring Guidelines

Exemplar Response

- $\frac{3}{8}$

Other Correct Responses

- Any fraction greater than $\frac{2}{8}$ and less than $\frac{2}{4}$

For this item, a full-credit response includes:

- The correct fraction (1 point).

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Math
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Question 8

Sample Responses

Sample Response: 1 point

Create a fraction that is greater than $\frac{2}{8}$ and less than $\frac{2}{4}$.

$$\frac{3}{8}$$

1	2	3
4	5	6
7	8	9
0	.	⊟

Notes on Scoring

This response earns full credit (1 point) because the student correctly created a fraction greater than $\frac{2}{8}$ and less than $\frac{2}{4}$.

- The student may have identified a common denominator and used it to create a fraction greater than $\frac{2}{8}$ and less than $\frac{2}{4}$.

$$\frac{2}{8} \times \frac{1}{1} = \frac{2}{8} \qquad \text{and} \qquad \frac{2}{4} \times \frac{2}{2} = \frac{4}{8}$$

$$\frac{2}{8} < \frac{3}{8} \qquad \text{and} \qquad \frac{3}{8} < \frac{4}{8}$$

Sample Response: 1 point

Create a fraction that is greater than $\frac{2}{8}$ and less than $\frac{2}{4}$.

$\frac{1}{3}$

1	2	3
4	5	6
7	8	9
0	.	▯/▯

Notes on Scoring

This response earns full credit (1 point) because the student correctly created a fraction greater than $\frac{2}{8}$ and less than $\frac{2}{4}$.

- The student may have simplified $\frac{2}{8}$ and $\frac{2}{4}$ into lowest terms. He or she may have used the two fractions in lowest terms to create a fraction greater than $\frac{2}{8}$ and less than $\frac{2}{4}$.

$$\frac{2}{8} \div \frac{2}{2} = \frac{1}{4} \qquad \text{and} \qquad \frac{2}{4} \div \frac{2}{2} = \frac{1}{2}$$

$$\frac{1}{4} < \frac{1}{3} \qquad \text{and} \qquad \frac{1}{3} < \frac{1}{2}$$

Sample Response: 0 points

Create a fraction that is greater than $\frac{2}{8}$ and less than $\frac{2}{4}$.

$$\frac{1}{4}$$

| ← | → | ↶ | ↷ | ⌫ |

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

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify a fraction greater than $\frac{2}{8}$ and less than $\frac{2}{4}$.

- The student may have identified a common denominator but created a fraction equal to $\frac{2}{8}$ and less than $\frac{2}{4}$.

$$\frac{2}{8} \times \frac{1}{1} = \frac{2}{8} \quad \text{and} \quad \frac{2}{4} \times \frac{2}{2} = \frac{4}{8} \quad \text{and} \quad \frac{1}{4} \times \frac{2}{2} = \frac{2}{8}$$

$$\frac{2}{8} = \frac{1}{4} \quad \text{and} \quad \frac{1}{4} < \frac{2}{4}$$

Sample Response: 0 points

Create a fraction that is greater than $\frac{2}{8}$ and less than $\frac{2}{4}$.

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

[←] [→] [↶] [↷] [⊗]

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

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly create a fraction greater than $\frac{2}{8}$ and less than $\frac{2}{4}$.

- The student may have identified a common denominator but created a fraction less than $\frac{2}{8}$ and $\frac{2}{4}$

$$\frac{2}{8} \times \frac{1}{1} = \frac{2}{8} \qquad \text{and} \qquad \frac{2}{4} \times \frac{2}{2} = \frac{4}{8}$$

$$\frac{2}{8} > \frac{1}{8} \qquad \text{and} \qquad \frac{1}{8} < \frac{4}{8}$$

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Question 9

Question and Scoring Guidelines

Question 9

Sara rides her bike 3 days a week. She rides for 10 minutes each day.

How many minutes does Sara spend riding her bike every 2 weeks?

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

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

- 60

Other Correct Responses

- N/A

For this item, a full-credit response includes:
- The correct value (1 point).

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Question 9

Sample Responses

Sample Response: 1 point

Sara rides her bike 3 days a week. She rides for 10 minutes each day.

How many minutes does Sara spend riding her bike every 2 weeks?

60

1	2	3
4	5	6
7	8	9
0	.	ᗊ

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified the number of minutes Sara spent riding her bike every two weeks.

- The student may have identified the arithmetic pattern based on the situation and used it to find the total time.
  - 10 + 10 + 10 + 10 + 10 + 10 = 60 minutes
  - 6 × 10 = 60 minutes
- The student may have set up and solved a two-step problem based on the situation to find the total time.
  - 3 × 10 + 3 × 10 =
  - 30 + 30 = 60 minutes

Sample Response: 0 points

Sara rides her bike 3 days a week. She rides for 10 minutes each day.

How many minutes does Sara spend riding her bike every 2 weeks?

40

1	2	3
4	5	6
7	8	9
0	.	▯/▯

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the number of minutes Sara spent riding her bike every two weeks.

- The student may have identified the arithmetic pattern based on 4 bike rides in two weeks instead of 6 bike rides.

    10 + 10 + 10 + 10 = 40 minutes
    4 × 10 = 40 minutes

- The student may have set up and solved a two-step problem based on 2 bike rides per week instead of 3 bike rides per week.

    2 × 10 + 2 × 10 =
    20 + 20 =
    2 × 20 = 40 minutes

Sample Response: 0 points

Sara rides her bike 3 days a week. She rides for 10 minutes each day.

How many minutes does Sara spend riding her bike every 2 weeks?

15

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

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the number of minutes Sara spent riding her bike every two weeks.

- The student may have set up a two-step problem and made an operation error while solving the problem. Instead of doubling the time Sara spent riding her bike each week, the student may have divided by 2.

    $(10 + 10 + 10) \div 2 =$
    $(3 \times 10) \div 2 =$
    $30 \div 2 = 15$ minutes

Grade 3
Math
Spring 2016 Item Release

Question 10

Question and Scoring Guidelines

Question 10

Alex has 100 balloons. He gives an equal number of the balloons to each of his 5 friends.

How many balloons should each friend get?

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

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

- 20

Other Correct Responses

- N/A

For this item, a full-credit response includes:
- The correct value (1 point).

Grade 3
Math
Spring 2016 Item Release

Question 10

Sample Responses

Sample Response: 1 point

Alex has 100 balloons. He gives an equal number of the balloons to each of his 5 friends.

How many balloons should each friend get?

20

1	2	3
4	5	6
7	8	9
0	.	▯/▯

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified the number of balloons Alex gave each friend.

- The student may have set up an equation for the unknown group size and solved the problem using division.

  5 × □ = 100 balloons

  100 ÷ 5 = 20 balloons

Sample Response: 0 points

Alex has 100 balloons. He gives an equal number of the balloons to each of his 5 friends.

How many balloons should each friend get?

2

1	2	3
4	5	6
7	8	9
0	.	⊟

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the number of balloons Alex gave each friend.

- The student may have set up an equation for the unknown group size based on the situation in the problem and used 50 for the number of groups instead of 5.

    50 × ☐ = 100 balloons
    100 ÷ 50 = 2 balloons

Sample Response: 0 points

Alex has 100 balloons. He gives an equal number of the balloons to each of his 5 friends.

How many balloons should each friend get?

25

1	2	3
4	5	6
7	8	9
0	.	⅛

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify the number of balloons Alex gave each friend.

- The student may have set up an equation for the unknown group size based on the situation in the problem and used 4 for the number of groups instead of 5.

$$4 \times \square = 100 \text{ balloons}$$
$$100 \div 4 = 25 \text{ balloons}$$