



**NEW ENGLAND
COMMON ASSESSMENT PROGRAM**

**Released Items
Support Materials
2012**

**Grade 3
Mathematics**

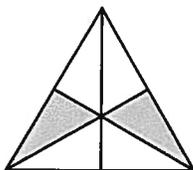
NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

N&O 2.1 Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 199 using place value, by applying the concepts of equivalency in composing or decomposing numbers (e.g., $34 = 17 + 17$; $34 = 29 + 5$); and in expanded notation (e.g., $141 = 1 \text{ hundred} + 4 \text{ tens} + 1 \text{ one}$ or $141 = 100 + 40 + 1$) **using models, explanations, or other representations**; and **positive fractional numbers** (benchmark fractions: $a/2$, $a/3$, or $a/4$, where a is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area and set models where the denominator is equal to the number of parts in the whole **using models, explanations, or other representations**.

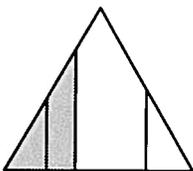
119840.001 119841 D Common, CMN

1 Which triangle is shaded $\frac{2}{4}$ gray?

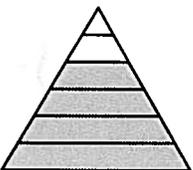
A.



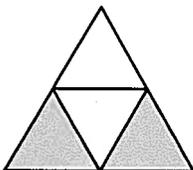
B.



C.



D.



NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

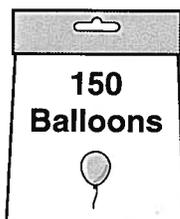
N&O 2.2 Demonstrates understanding of the relative magnitude of numbers from 0 to 199 by ordering whole numbers; by comparing whole numbers to each other or to benchmark whole numbers (10, 25, 50, 75, 100, 125, 150, or 175); by demonstrating an understanding of the relation of inequality when comparing whole numbers by using “1 more”, “1 less”, “10 more”, “10 less”, “100 more”, or “100 less”; or by connecting number words and numerals to the quantities they represent using models, number lines, or explanations.



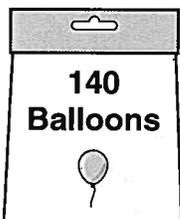
119811.001 119812 D Common, CMN

- 2 Mrs. Willis needs 150 balloons for a party. Which bag has exactly 10 more balloons than she needs?

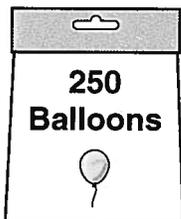
A.



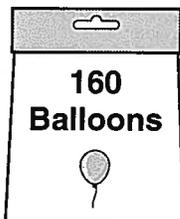
B.



C.



D.



NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

N&O 2.2 Demonstrates understanding of the relative magnitude of numbers from 0 to 199 by ordering whole numbers; by comparing whole numbers to each other or to benchmark whole numbers (10, 25, 50, 75, 100, 125, 150, or 175); by demonstrating an understanding of the relation of inequality when comparing whole numbers by using “1 more”, “1 less”, “10 more”, “10 less”, “100 more”, or “100 less”; or by connecting number words and numerals to the quantities they represent using models, number lines, or explanations.

119716.000 B Common, CMN

3 Three children sold cards.

- Rita sold 43 cards.
- Carmen sold 37 cards.
- Lisa sold the fewest cards.

How many cards could Lisa have sold?

- A. 45
- B. 29
- C. 38
- D. 40

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

N&O 2.3 Demonstrates conceptual understanding of mathematical operations involving addition and subtraction of whole numbers by solving problems involving joining actions, separating actions, part-part whole relationships, and comparison situations; and addition of multiple one-digit whole numbers.



124433.001 136597 C Common, CMN

- 4 This chart shows the number of hours four students helped in the library.

Student	Number of Hours
Lisa	6
Shoko	8
Danielle	0
Alan	7

How many hours did these four students help in the library altogether?

- A. 11
- B. 14
- C. 21
- D. 22

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

N&O 2.3 Demonstrates conceptual understanding of mathematical operations involving addition and subtraction of whole numbers by solving problems involving joining actions, separating actions, part-part whole relationships, and comparison situations; and addition of multiple one-digit whole numbers.



122953.000 A Common, CMN

- 5 Brian picked 96 berries. Brian picked 29 more berries than James. How many berries did James pick?
- A. 67
 - B. 73
 - C. 77
 - D. 125

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

N&O 2.5 Demonstrates understanding of monetary value by adding coins together to a value no greater than \$1.99 and representing the result in dollar notation; making change from \$1.00 or less, or recognizing equivalent coin representations of the same value (values up to \$1.99).

124334.001 124335 C Common, CMN

6 Look at these coins.



What is the value of these coins?

- A. \$0.11
- B. \$1.07
- C. \$1.28
- D. \$1.43

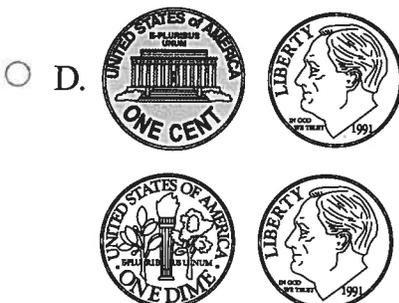
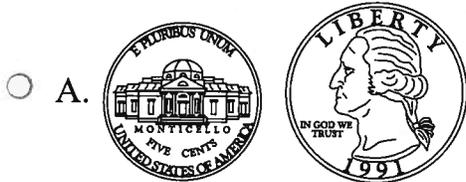
NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

N&O 2.5 Demonstrates understanding of monetary value by adding coins together to a value no greater than \$1.99 and representing the result in dollar notation; making change from \$1.00 or less, or recognizing equivalent coin representations of the same value (values up to \$1.99).



144607.002 144608 B Common, CMN

7 Laurie bought a fish for sixty-five cents at a pet store. She paid with a one-dollar bill. Which set of coins shows the correct amount of change Laurie received?



NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

F&A 2.4 Demonstrates conceptual understanding of equality by finding the value that will make an open sentence true (e.g., $2 + \square = 7$). (limited to one operation and limited to use addition or subtraction)

139665.004 139666 A Common, CMN

8 Look at this number sentence.

$$16 = \square - 2$$

What number makes this number sentence true?

- A. 18
- B. 16
- C. 14
- D. 8

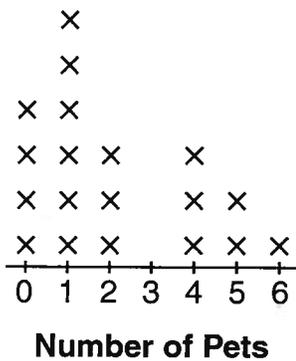
NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

DSP 2.1 Interprets a given representation (pictographs with one-to-one correspondence, line plots, tally charts, or tables) to answer questions related to the data, or to analyze the data to formulate conclusions. (IMPORTANT: *Analyzes data consistent with concepts and skills in DSP 2.2.*)

119704.002 119705 C Common, CMN

- 9 This line plot shows the number of pets Mrs. Caruso's students have.

Mrs. Caruso's Students' Pets



Key
× represents 1 student

How many students have no pets?

- A. 0
- B. 3
- C. 4
- D. 6

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

DSP 2.2 Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using more, less, or equal.

203221.002 203222 B Common, CMN

- 10 This tally chart shows the number of cans four students collected on Monday and on Tuesday.

Cans Collected for Recycling

Student	Number of Cans Collected on Monday	Number of Cans Collected on Tuesday
Reggie		
Ellen		
Tony		
Paula		

How many more cans did the students collect on Monday than on Tuesday?

- A. 8
- B. 11
- C. 13
- D. 15

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

N&O 2.3 Demonstrates conceptual understanding of mathematical operations involving addition and subtraction of whole numbers by solving problems involving joining actions, separating actions, part-part whole relationships, and comparison situations; and addition of multiple one-digit whole numbers.



119852.000 Common, CMN

- 11 A postman delivered 81 letters and 15 packages. How many more letters than packages did the postman deliver?

Scoring Guide:

Score	Description
1	for correct answer, 66
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE A)



119852.000 Common, CMN

- 11 A postman delivered 81 letters and 15 packages. How many more letters than packages did the postman deliver?

66

The student's response is correct.

SCORE POINT 1
(EXAMPLE B)



119852.000 Common, CMN

- 11 A postman delivered 81 letters and 15 packages. How many more letters than packages did the postman deliver?

$$\begin{array}{r} \cancel{81} \\ - 15 \\ \hline 66 \end{array}$$

The student's response is correct.
(Showing work is not required.)

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0



119852.000 Common, CMN

- 11 A postman delivered 81 letters and 15 packages. How many more letters than packages did the postman deliver?

$$\begin{array}{r} - 81 \\ 15 \\ \hline 74 \end{array}$$

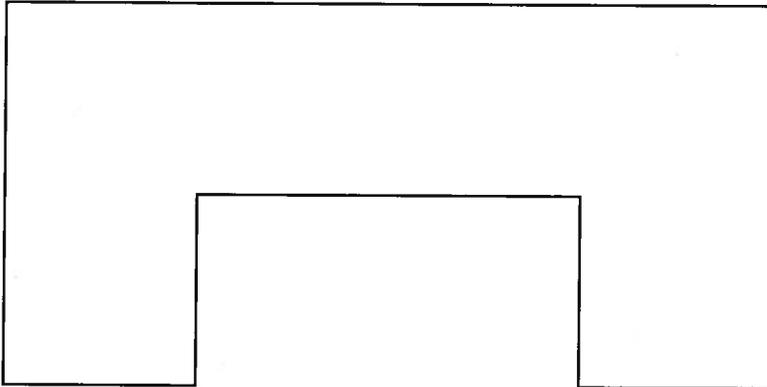
The student's response is incorrect.

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

G&M 2.6 Demonstrates conceptual understanding of perimeter and area by using models or manipulatives to surround and cover polygons.

119784.003 119785 Common, CMN

12 Use the square-inch tiles from your envelope to find the area of the shape below.



What is the area of this shape? Write the area on the line below.

_____ square inches

Scoring Guide:

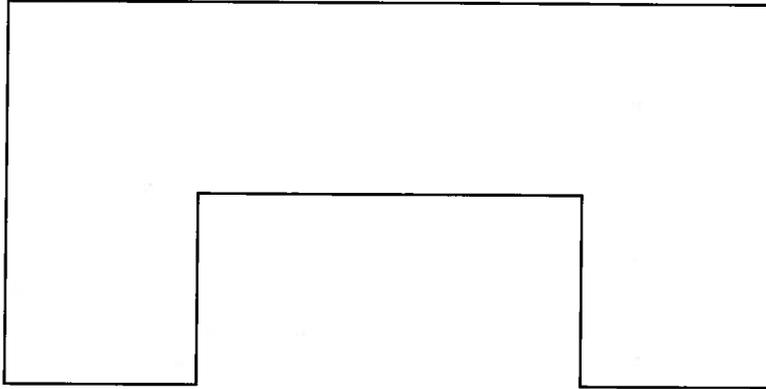
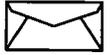
Score	Description
1	for correct answer, 6 (square inches)
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1

119784.003 119785 Common, CMN

- 12 Use the square-inch tiles from your envelope to find the area of the shape below.



What is the area of this shape? Write the area on the line below.

6 square inches

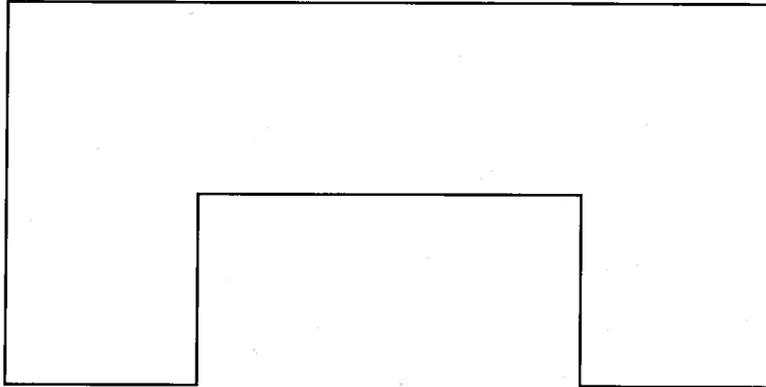
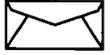
The student's response is correct.

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0

119784.003 119785 Common, CMN

- 12 Use the square-inch tiles from your envelope to find the area of the shape below.



What is the area of this shape? Write the area on the line below.

7 square inches

The student's response is incorrect.

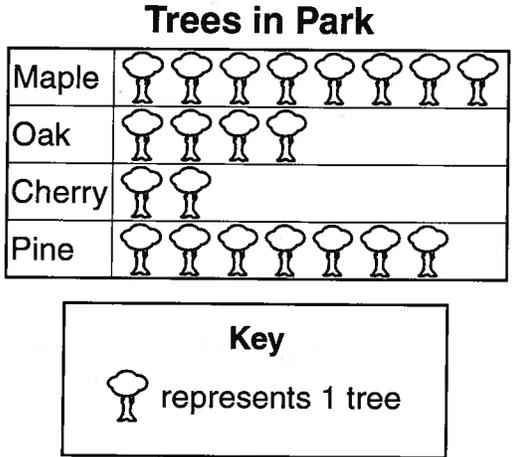
**NECAP 2012 RELEASED ITEMS
GRADE 3 MATH**

DSP 2.2 Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using more, less, or equal.



119747.001 119748 Common, CMN

13 Look at this pictograph.



How many fewer cherry trees than maple trees are in the park?

Scoring Guide:

Score	Description
1	for correct answer, 6
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

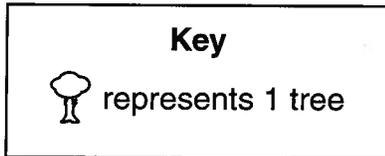
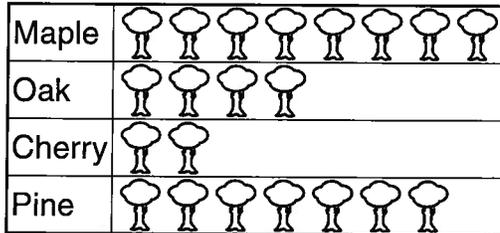
SCORE POINT 1
(EXAMPLE A)



119747.001 119748 Common, CMN

13 Look at this pictograph.

Trees in Park



How many fewer cherry trees than maple trees are in the park?

6 fewer $\frac{8-2}{6}$

The student's response is correct.
(Showing work is not required.)

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE B)

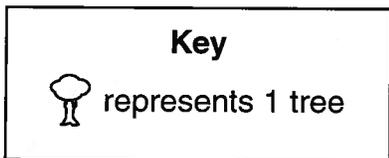


119747.001 119748 Common, CMN

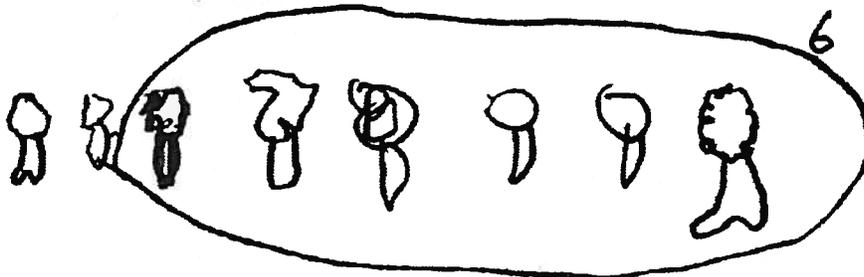
13 Look at this pictograph.

Trees in Park

Maple	
Oak	
Cherry	
Pine	



How many fewer cherry trees than maple trees are in the park?



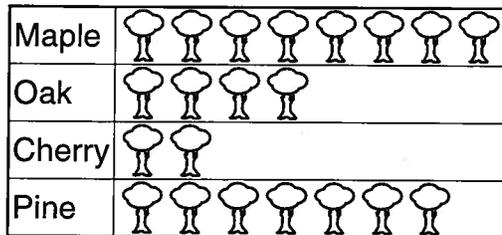
The student's response is correct.
(Showing work is not required.)



119747.001 119748 Common, CMN

13 Look at this pictograph.

Trees in Park



Key

 represents 1 tree

How many fewer cherry trees than maple trees are in the park?

8 M
2 C

The student's response is incorrect.

**NECAP 2012 RELEASED ITEMS
GRADE 3 MATH**

N&O 2.1 Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 199 using place value, by applying the concepts of equivalency in composing or decomposing numbers (e.g., $34 = 17 + 17$; $34 = 29 + 5$); and in expanded notation (e.g., $141 = 1 \text{ hundred} + 4 \text{ tens} + 1 \text{ one}$ or $141 = 100 + 40 + 1$) **using models, explanations, or other representations**; and **positive fractional numbers** (benchmark fractions: $a/2$, $a/3$, or $a/4$, where a is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area and set models where the denominator is equal to the number of parts in the whole **using models, explanations, or other representations**.

119780.002 119781 Common, CMN

- 14** Look at this candy bar. Haley eats 2 pieces of this candy bar and Karl eats one-fourth of this candy bar.



- a. What fraction of the candy bar does Haley eat?
- b. How many pieces does Karl eat?

Scoring Guide:

Score	Description
2	for correct answer in part a, $\frac{1}{2}$ (or equivalent) and part b, 1
1	for correct answer in part a only OR for correct answer in part b only
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 2
(EXAMPLE A)

119780.002 119781 Common, CMN

- 14 Look at this candy bar. Haley eats 2 pieces of this candy bar and Karl eats one-fourth of this candy bar.



- a. What fraction of the candy bar does Haley eat?

$$\frac{2}{4}$$

Part a: The student's response is correct.

- b. How many pieces does Karl eat?

He eats 1 piece.

Part b: The student's response is correct.

SCORE POINT 2
(EXAMPLE B)

119780.002 119781 Common, CMN

- 14 Look at this candy bar. Haley eats 2 pieces of this candy bar and Karl eats one-fourth of this candy bar.



- a. What fraction of the candy bar does Haley eat?

$$\frac{1}{2}$$

Part a: The student's response is correct.

- b. How many pieces does Karl eat?

1 piece

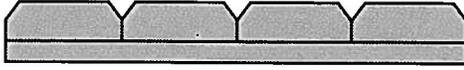
Part b: The student's response is correct.

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE A)

119780.002 119781 Common, CMN

- 14 Look at this candy bar. Haley eats 2 pieces of this candy bar and Karl eats one-fourth of this candy bar.



- a. What fraction of the candy bar does Haley eat?

$$\frac{4}{2}$$

Part a: The student's response is incorrect.

- b. How many pieces does Karl eat?

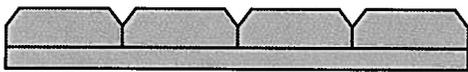
Karl ate 1 piece of the
candy bar.

Part b: The student's response is correct.

SCORE POINT 1
(EXAMPLE B)

119780.002 119781 Common, CMN

- 14 Look at this candy bar. Haley eats 2 pieces of this candy bar and Karl eats one-fourth of this candy bar.



- a. What fraction of the candy bar does Haley eat?

$$\frac{2}{4}$$

Part a: The student's response is correct.

- b. How many pieces does Karl eat?

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

Part b: The student's response is incorrect.

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0

119780.002 119781 Common, CMN

- 14 Look at this candy bar. Haley eats 2 pieces of this candy bar and Karl eats one-fourth of this candy bar.



- a. What fraction of the candy bar does Haley eat?

2 peo's

Part a: The student's response is incorrect.

- b. How many pieces does Karl eat?

one fourth

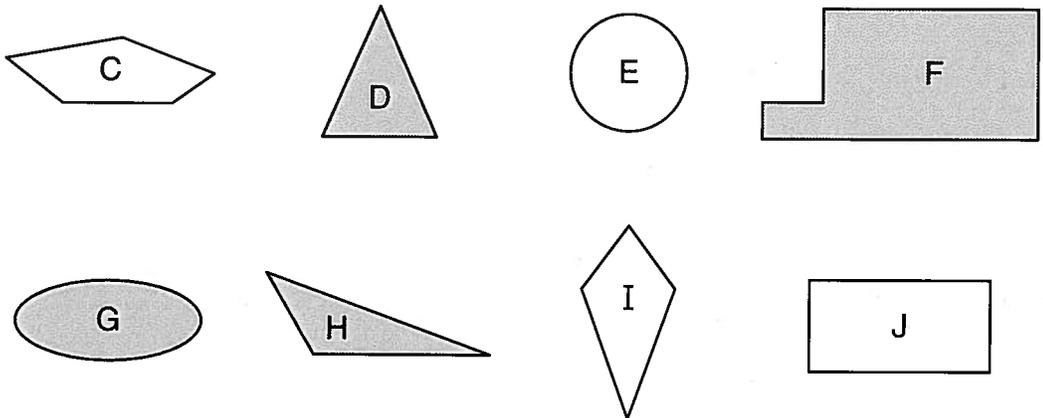
Part b: The student's response is incorrect.

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

G&M 2.1 Uses properties, attributes, composition, or decomposition to sort or classify polygons or objects by a combination of two or more nonmeasurable or measurable attributes.

215701.001 215702 Common, CMN

15 Ryan is playing a game using these shapes.



Ryan has these rules about a mystery shape:

- Rule 1: The shape is shaded.
- Rule 2: The shape has angles.
- Rule 3: Each side of the shape is a different length.

- a. Write the letter of **every** shape that fits all three rules.
- b. Draw a four-sided shape that fits **all** three rules.

Scoring Guide:

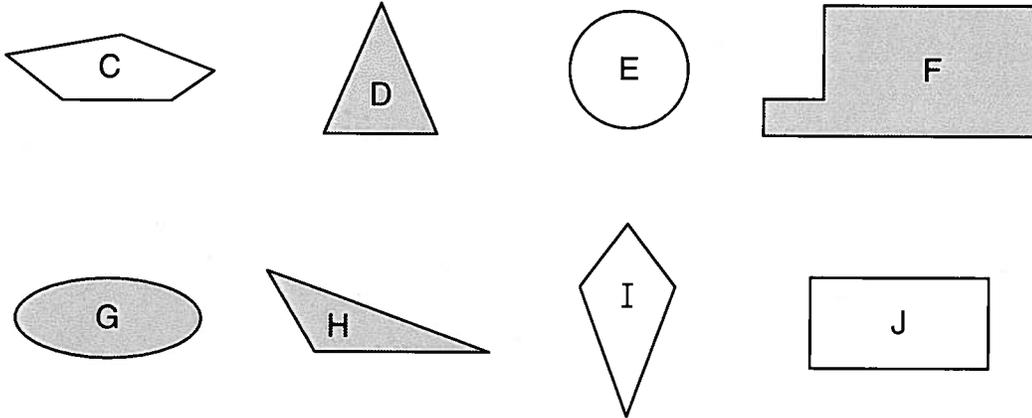
Score	Description
2	for correct answer in part a, F and H , and for correct drawing in part b
1	for correct answer in part a OR for correct drawing in part b
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Sample Response:



215701.001 215702 Common, CMN

15 Ryan is playing a game using these shapes.



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a. Write the letter of **every** shape that fits all three rules.

hif

Part a: The student's response is correct.

b. Draw a four-sided shape that fits **all** three rules.



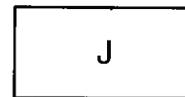
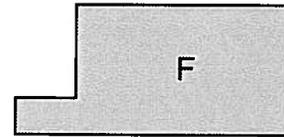
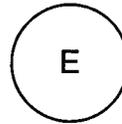
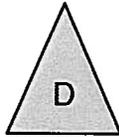
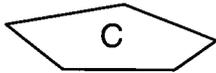
Part b: The student's response is correct.

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE A)

215701.001 215702 Common, CMN

15 Ryan is playing a game using these shapes.



Ryan has these rules about a mystery shape:

- Rule 1: The shape is shaded.
- Rule 2: The shape has angles.
- Rule 3: Each side of the shape is a different length.

a. Write the letter of **every** shape that fits all three rules.

H and F

Part a: The student's response is correct.

b. Draw a four-sided shape that fits **all** three rules.



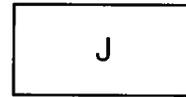
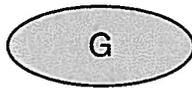
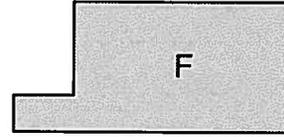
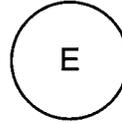
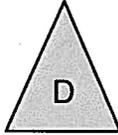
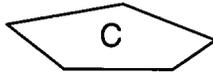
Part b: The student's response is incorrect.

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE B)

215701.001 215702 Common, CMN

15 Ryan is playing a game using these shapes.



Ryan has these rules about a mystery shape:

- Rule 1: The shape is shaded.
- Rule 2: The shape has angles.
- Rule 3: Each side of the shape is a different length.

a. Write the letter of **every** shape that fits all three rules.

H

Part a: The student's response is incorrect.

b. Draw a four-sided shape that fits **all** three rules.



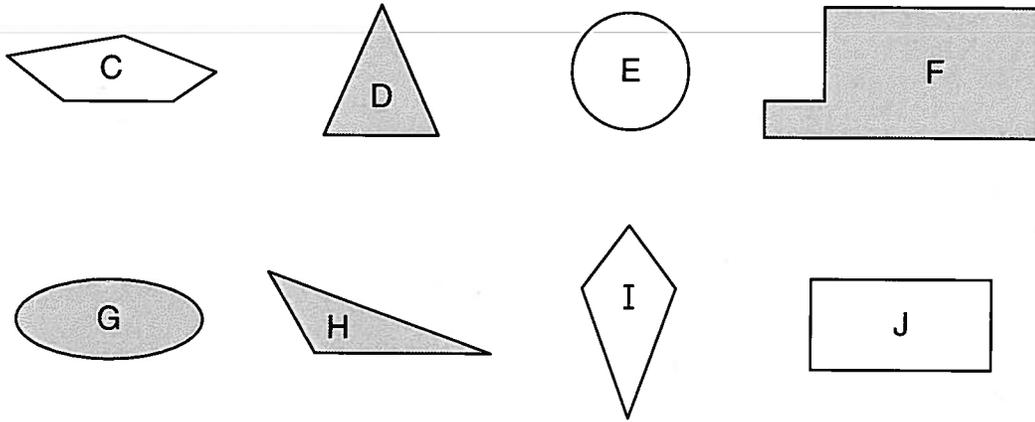
Part b: The student's response is correct.

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0

215701.001 215702 Common, CMN

15 Ryan is playing a game using these shapes.



Ryan has these rules about a mystery shape:

- Rule 1: The shape is shaded.
- Rule 2: The shape has angles.
- Rule 3: Each side of the shape is a different length.

a. Write the letter of **every** shape that fits all three rules.

H

Part a: The student's response is incorrect.

b. Draw a four-sided shape that fits **all** three rules.



Part b: The student's response is incorrect.

**NECAP 2012 RELEASED ITEMS
GRADE 3 MATH**

F&A 2.4 Demonstrates conceptual understanding of equality by finding the value that will make an open sentence true (e.g., $2 + \square = 7$). (limited to one operation and limited to use addition or subtraction)

119920.002 119921 Common, CMN

16 Look at these number sentences.

$$\triangle + 10 = 18$$

$$\triangle + \bigcirc = 12$$

The \triangle has the same value in both of these number sentences. The \bigcirc has a different value than the \triangle .

a. What is the value of \triangle ?

b. What is the value of \bigcirc ?

Scoring Guide:

Score	Description
2	for correct answer in part a, 8 , and in part b, 4
1	for correct answer in part a only OR for correct answer in part b only OR for correct answer in part b based on an incorrect answer in part a
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 2
(EXAMPLE A)

119920.002 119921 Common, CMN

16 Look at these number sentences.

$$\triangle + 10 = 18$$

$$\triangle + \bigcirc = 12$$

The \triangle has the same value in both of these number sentences. The \bigcirc has a different value than the \triangle .

a. What is the value of \triangle ?

8

Part a: The student's response is correct.

b. What is the value of \bigcirc ?

4

Part b: The student's response is correct.

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 2
(EXAMPLE B)

119920.002 119921 Common, CMN

16 Look at these number sentences.

$$\triangle + 10 = 18$$

$$\triangle + \bigcirc = 12$$

The \triangle has the same value in both of these number sentences. The \bigcirc has a different value than the \triangle .

a. What is the value of \triangle ? 8 + 10 = 18 Answer: 8

Part a: The student's response is correct.
(Showing work is not required.)

b. What is the value of \bigcirc ? 8 + 4 = 12 Answer: 4

Part b: The student's response is correct.
(Showing work is not required.)

NECAP 2012 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1

119920.002 119921 Common, CMN

16 Look at these number sentences.

$$\triangle + 10 = 18$$

$$\triangle + \bigcirc = 12$$

The \triangle has the same value in both of these number sentences. The \bigcirc has a different value than the \triangle .

a. What is the value of \triangle ?

7

Part a: The student's response is incorrect.

b. What is the value of \bigcirc ?

5

Part b: The student's response is correct based on an incorrect answer in part a.

SCORE POINT 0

119920.002 119921 Common, CMN

16 Look at these number sentences.

$$\triangle + 10 = 18$$

$$\triangle + \bigcirc = 12$$

The \triangle has the same value in both of these number sentences. The \bigcirc has a different value than the \triangle .

a. What is the value of \triangle ?

18

Part a: The student's response is incorrect.

b. What is the value of \bigcirc ?

12

Part b: The student's response is incorrect.

Grade 3 Mathematics Released Item Information – 2012

Released Item Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
No Tools Allowed		✓		✓	✓		✓				✓		✓			
Content Strand ¹	NO	FA	DP	DP	NO	GM	DP	NO	GM	FA						
GLE Code	2-1	2-2	2-2	2-3	2-3	2-5	2-5	2-4	2-1	2-2	2-3	2-6	2-2	2-1	2-1	2-4
Depth of Knowledge Code	2	1	1	1	2	1	2	1	2	2	1	1	2	2	3	2
Item Type ²	MC	SA	SA	SA	SA	SA	SA									
Answer Key	D	D	B	C	A	C	B	A	C	B						
Total Possible Points	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2

¹Content Strand: NO = Numbers & Operations, GM = Geometry & Measurement, FA = Functions & Algebra, DP = Data, Statistics, & Probability

²Item Type: MC = Multiple Choice, SA = Short Answer